CDP-XE510

SERVICE MANUAL

AEP Model
UK Model

Photo: BLACK

Model Name Using Similar Mechanism	CDP-XE500
CD Mechanism Type	CDM14-5BD22
Base Unit Type	BU-5BD22
Optical Pick-up Type	KSS-213BA/F-NP

SPECIFICATIONS

Compact disc player

Laser
Semiconductor laser (λ = 780 nm)
Emission duration: continuous

Laser output
Max 44.6 μW*
* This output is the value measured at a distance of 200 mm from the objective lens surface on the Optical Pick-up block with 7 mm aperture.

Frequency response 2 Hz to 20 kHz ± 0.5 dB
Signal-to-noise ratio More than 100 dB
Dynamic range More than 98 dB
Harmonic distortion Less than 0.0045%
Channel separation More than 95 dB

Outputs

	Jack type	Maximum output level	Load impedance
LINE OUT	Phono jacks	2 V (at 50 kilohms)	Over 10 kilohms
DIGITAL OUT (OPTICAL)	Optical output connector	–18 dBm	Wave length: 660 nm
PHONES	Stereo phone jack	10 mW	32 ohms

General

Power requirements 220 V – 230 V AC, 50/60 Hz
Power consumption 11 W
Dimensions (approx.) (w/h/d) 430 × 95 × 290 mm (17 × 3 3/4 × 11 1/2 in.) incl. projecting parts
Mass (approx.) 3.0 kg (6 lbs 10 oz)

COMPACT DISC PLAYER

MICROFILM

SONY®

The laser component in this product is capable of emitting radiation exceeding the limit for Class 1.

CLASS 1 LASER PRODUCT
LUOKAN 1 LASERLAITE
KLASS 1 LASERAPPARAT

This appliance is classified as a CLASS 1 LASER product. The CLASS 1 LASER PRODUCT MARKING is located on the rear exterior.

This caution label is located inside the unit.

CAUTION	;	INVISIBLE LASER RADIATION WHEN OPEN. AVOID EXPOSURE TO BEAM.
ADVARSEL	;	USYNLIG LASERSTRÅLING VED ÅBNING NÅR SIKKERHEDSAFBRYDERE ER UDE AF FUNKTION. UNDGÅ UDS ÆTTELSE FOR STRÅLING.
VARO!	;	AVATTAESSA JA SUOJALUKITUS OHITETTAESSA DLET ALTTIINA LASERSÄTEILYLLE.
VARNING	;	LASERSTRÅLING NÄR DENNA DEL ÄR OPPNÅD OCH SPÄRREN ÄR URXOPPLAD.
ADVARSEL	;	USYNLIG LASERSTRÅLING NÅR DEKSEL ÅPNES UNNGÅ EKSPONERING FOR STRÅLEN.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Notes on chip component replacement
- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing
- Keep the temperature of soldering iron around 270˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

SAFETY-RELATED COMPONENT WARNING !!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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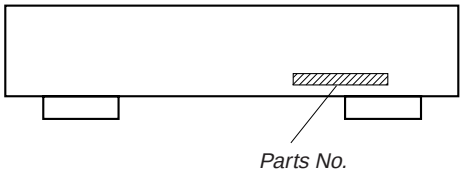
MODEL IDENTIFICATION

– BACK PANEL –



MODEL	PARTS No.
AEP, EE, CIS	4-987-946-0 □
UK	4-987-946-1 □

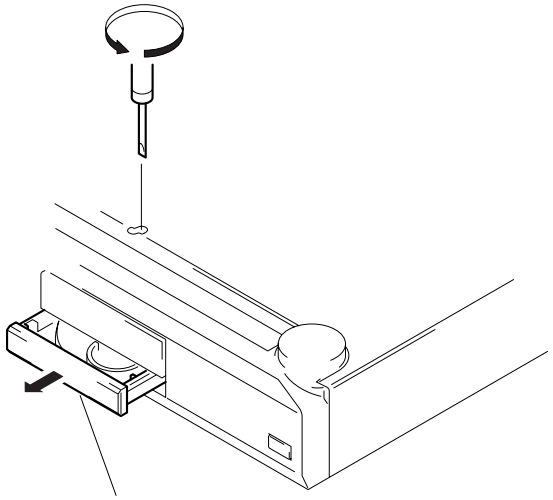
- Abbreviation
  EE : East European model

SECTION 1
SERVICING NOTE

HOW TO OPEN THE DISC TRAY WHEN POWER SWITCH TURNS OFF

Insert a tapering driver into the aperture of the unit bottom, and turn in the direction of arrow.

* *To close the disc table, turn the driver in the reverse direction.*



Pull out disc table

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic breakdown because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic breakdown and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

LASER DIODE AND FOCUS SEARCH OPERATION CHECK

Carry out the "S curve check" in "CD section adjustment" and check that the S curve waveform is output two times.

CD-TEXT TEST DISC

This unit is able to display the text data (character information) written in the CD on its fluorescent indicator tube.
The CD-TEXT TEST DISC (TGCS-313: J-2501-126-A) is used for checking the display.
To check, perform the following procedure.

Procedure:

1. Turn ON the power and set the test disc.
2. Press the ▶ button and play back the disc.
3. The following will be displayed on the fluorescent indicator tube.
   Display : 1kHz/0 dB/ L&R
4. Rotate the ⏮ AMS ⏭ knob to switch the track. The text data of each track will be displayed.

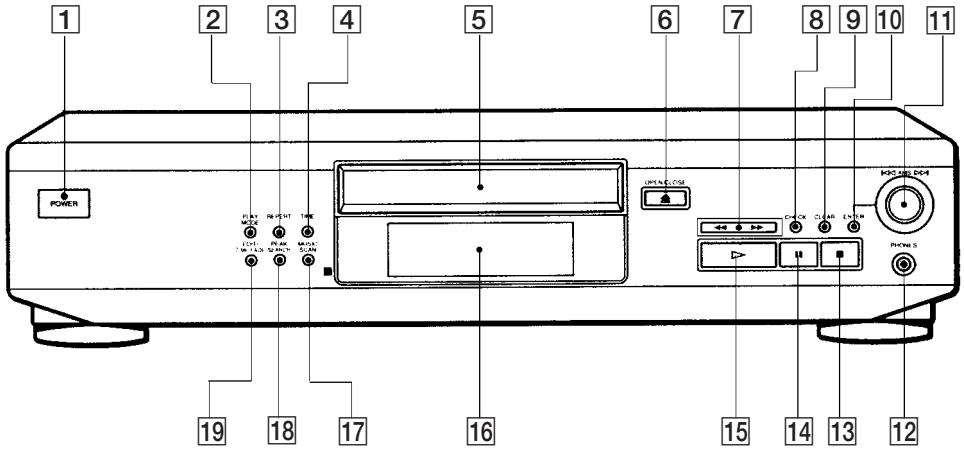
Restrictions in CD-TEXT Contents and Display

The micro processor's RAM has limit of capacity in this unit, The display may not show all the track titles in a disc when you play the CD TEXT TEST DISC, but it is not unusual. In that case, "NOT DISPLAY" appears in the display.

SECTION 2
GENERAL

LOCATION OF PARTS AND CONTROLS

Front Panel



1 POWER switch
2 PLAY MODE button
3 REPEAT button
4 TIME button
5 Disc tray
6 ⏏ OPEN/CLOSE button
7 ◀◀/▶▶ buttons
8 CHECK button
9 CLEAR button
10 ENTER button
11 ⏮/⏭ AMS* knob
12 PHONES jack
13 ■ (stop) button
14 ❚❚ (pause) button
15 ▷ (play) button
16 Display window
17 MUSIC SCAN button
18 PEAK SEARCH button
19 EDIT/TIME FADE button

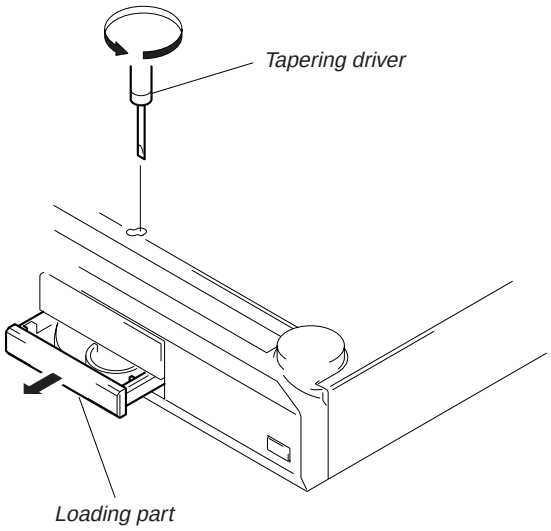
* AMS is the abbreviation for Automatic Music Sensor.

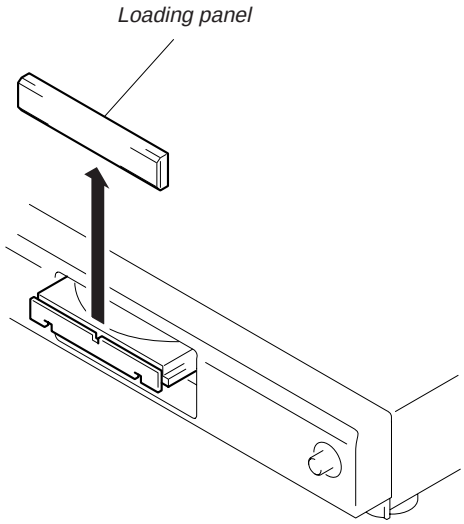
SECTION 3
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

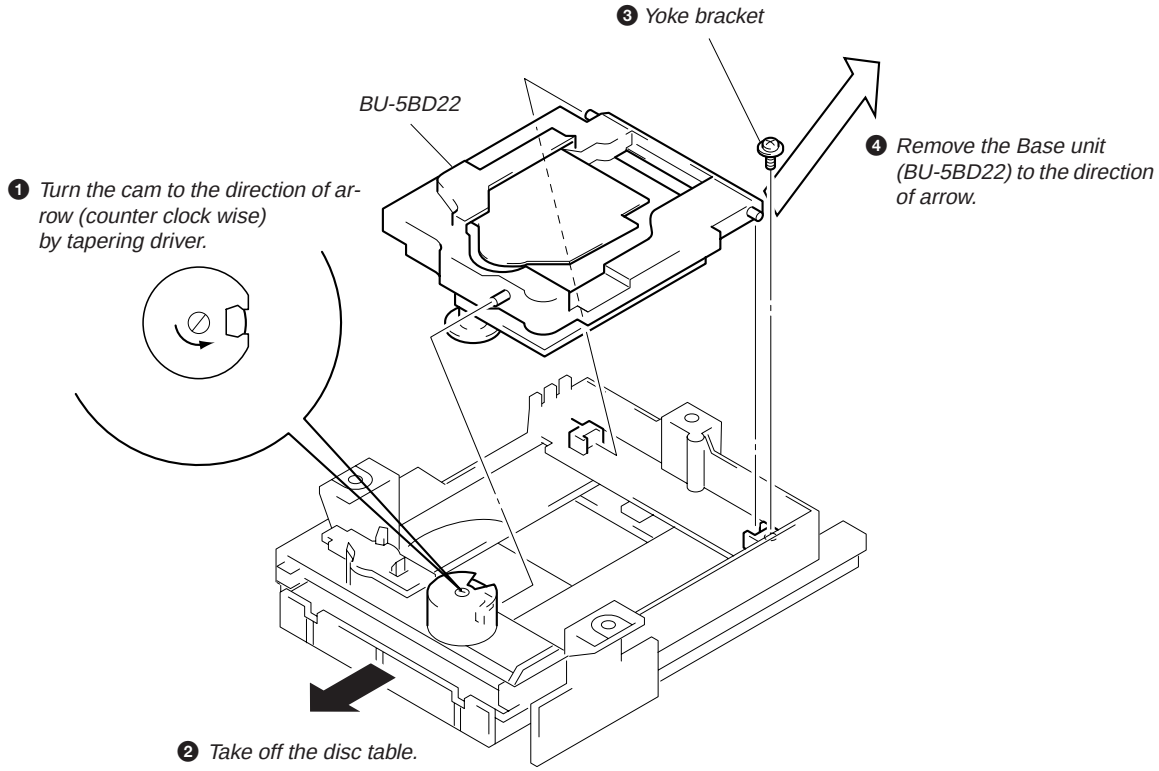
3-1. FRONT PANEL

- In order to remove the front panel block when the power supply does not turn on, rotate the cam with tapering driver as the figure shows, and the loading part will be moved.
  Then pull out the loading part by your hand to remove the loading panel as the figure shows. After that take out the front panel block.





3-2. BASE UNIT (BU-5BD22)


❸ Yoke bracket
BU-5BD22
❹ Remove the Base unit (BU-5BD22) to the direction of arrow.
❶ Turn the cam to the direction of arrow (counter clock wise) by tapering driver.
❷ Take off the disc table.

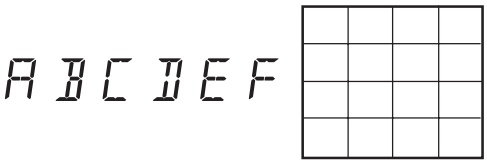
SECTION 4
TEST MODE

4-1. AF MODE

The following checks can be performed in the AF mode, which is set by connecting the TP2 (AFADJ) terminal on MAIN board to the Ground and turning on the power.

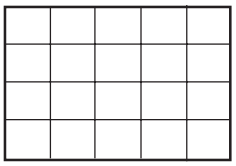
- **FL tube check**

  After all segments light up, when the ▷ button is pressed, the following will be displayed. (Partial lighting 1)



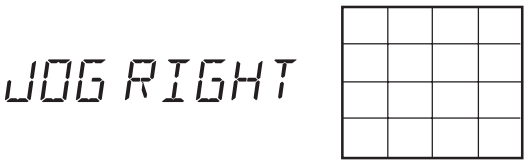
(Partial lighting 1)

When the ■ button is pressed, the following will be displayed. (partial lighting 2)



(Partial lighting 2)

The display will light up as follows (partial lighting 3) when the ⏮◁◁ AMS ▷▷⏭ knob is rotated to the right, and as follows (partial lighting 4) when rotated to the left.



(Partial lighting 3)

(Partial lighting 4)

When the OPEN/CLOSE ⏏ button is pressed, all will light up again.

- **Key check**

  All buttons have corresponding button numbers. When a button is pressed, the counter will count up and display the button's number. However, the counter will only count to "15". It will not count for buttons already pressed once, but will display the button's number.

Display of button number *Display of counting*

Button	Button No. Displayed	Button	Button No. Displayed
CHECK	0	PLAY MODE	12
▶▶	1	REPEAT	13
◀◀	2	TIME	14
▮▮	4	OPEN/ CLOSE ⏏	All lit
ENTER	6		
CLEAR	7	PLAY ▷	Partial lighting 1
MUSIC SCAN	9	STOP ■	Partial lighting 2
PEAK SEARCH	10		
EDIT/ TIME FADE	11		

- **Remote commander check**

  When buttons other than the ▷ button are pressed when the whole display is lit, the display will change to partial lighting 2. When the "▷" button is pressed, the display will light up as follows.

(Partial lighting 5)

4-2. ADJ MODE

The following operations are performed in the ADJ mode, which is set by connecting the TP1 (ADJ) terminal to the Ground and turning on the power.

- During playback, there is no problem even if the GFS is continuously LOW.
- High speed search is prohibited during access.
- During playback, the gain of focus servo and spindle servo does not decrease.
- Servo related manual operations and measurement can be performed.
  (For details of operations, refer to Table of Button Operrations in ADJ Mode.)

Table of Button Operations in ADJ Mode

The jitter value display mode can be set after the all-music remaining number mode using the TIME button.

The functions of the number buttons are shown in the following table.

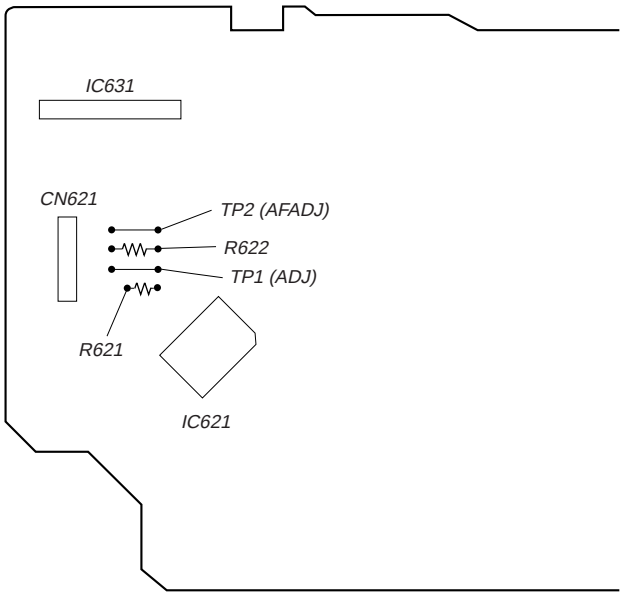
Function of Number Buttons (With the Attached Remote Commander)

Button	Function
1	Focus bias 8-step up
2	Middle of focus bias up/down turning point
3	Tracking servo, sled servo off
4	Auto gain initialization
5	Focus servo off
6	Focus bias 8-step down
7	Immediate readjustment of focus bias
8	Tracking servo, sled servo on
10	Auto focus bias start point

4-3. CLV-S MODE

The spindle servo for playback sets into the CLV-S mode when the TP2 (AFADJ) terminal is connected to Ground after turning on the power.

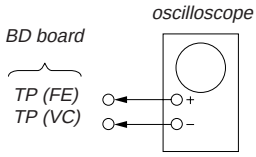
[MAIN BOARD] — Component Side —



SECTION 5
ELECTRICAL BLOCK CHECKING

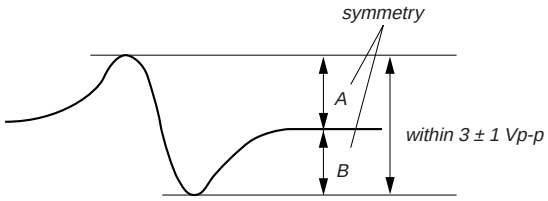
Note:
1. CD Block is basically designed to operate without adjustment. Therefore, check each item in order given.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.

S Curve Check



Procedure :
1. Connect oscilloscope to test point TP (FE) on BD board.
2. Connect between test point TP (FEI) and TP (VC) by lead wire.
3. Turn Power switch on.
4. Put disc (YEDS-18) in and turn Power switch on again and actuate the focus search. (actuate the focus search when disc table is moving in and out.)
5. Check the oscilloscope waveform (S-curve) is symmetrical between A and B. And confirm peak to peak level within 3±1 Vp-p.

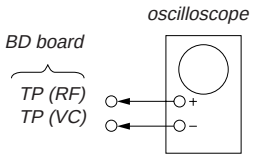
S-curve waveform



6. After check, remove the lead wire connected in step 2.

Note :
- Try to measure several times to make sure than the ratio of A : B or B : A is more than 10 : 7.
- Take sweep time as long as possible and light up the brightness to obtain best waveform.

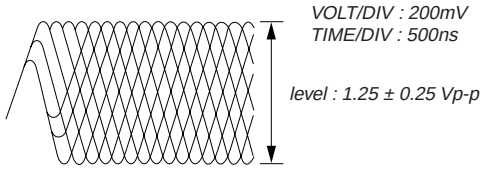
RF Level Check



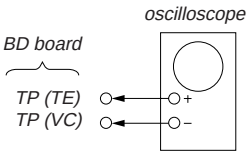
Procedure :
1. Connect oscilloscope to test point TP (RF) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in to play the number five track.
4. Confirm that oscilloscope waveform is clear and check RF signal level is correct or not.

Note:
A clear RF signal waveform means that the shape "◊" can be clearly distinguished at the center of the waveform.

RF signal waveform

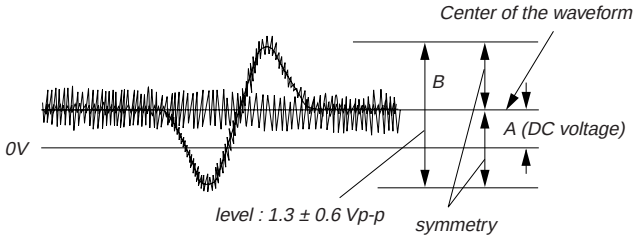


E-F Balance (1 Track Jump) Check (Without remote commander)

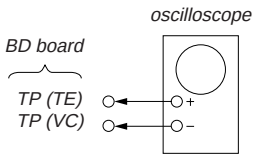


Procedure :
1. Connect oscilloscpe to test point TP (TE) on BD board.
2. Turn Power switch on.
3. Put disc (YEDS-18) in to play the number five track.
4. Press the "❚❚ (Pause)" button. (Becomes the 1 track jump mode)
5. Check the level B of the oscilliscope's waveform and the A (DC voltage) of the center of the Traverse waveform.
   Confirm the following :
   A/B x 100 = less than ± 22%

1 track jump waveform

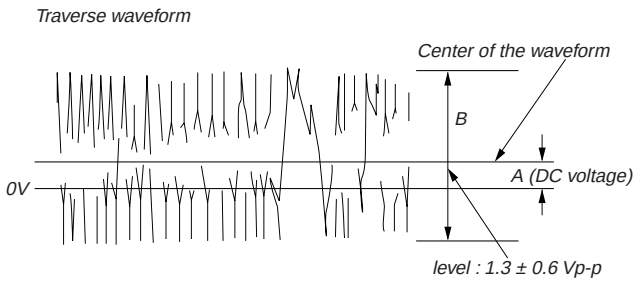


E-F Balance Check (With remote commander)

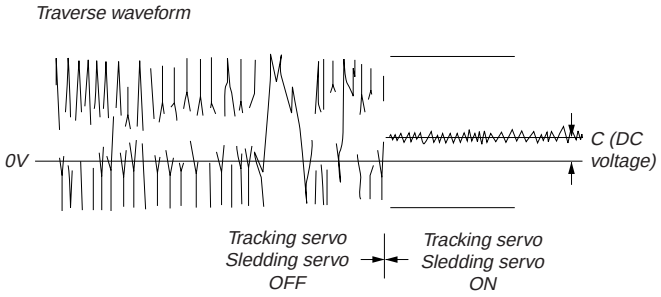


Procedure :
1. Connect the test point TP1 (ADJ) on MAIN board to the ground with a lead wire on main board.
2. Connect oscilloscpe to test point TP (TE) on BD board.
3. Turn the Power switch on to set the ADJ mode.
4. Put disc (YEDS-18) in to play the number five track.
5. Press the "3" button. (The tracking servo and the sledding servo are turned OFF.)

6. Check the level B of the oscilliscope's waveform and the A (DC voltage) of the center of the Traverse waveform.
   Confirm the following :
   A/B x 100 = less than ± 22%



7. Press the “8” button. (The tracking servo and sledding servo are turned ON.) Confirm the C (DC voltage) is almost equal to the A (DC voltage) is step 6.

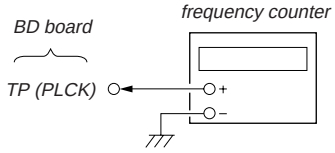


8. Disconnect the lead wire of TP1 (ADJ) connected in step 1.

RF PLL Free-run Frequency Check

Procedure :

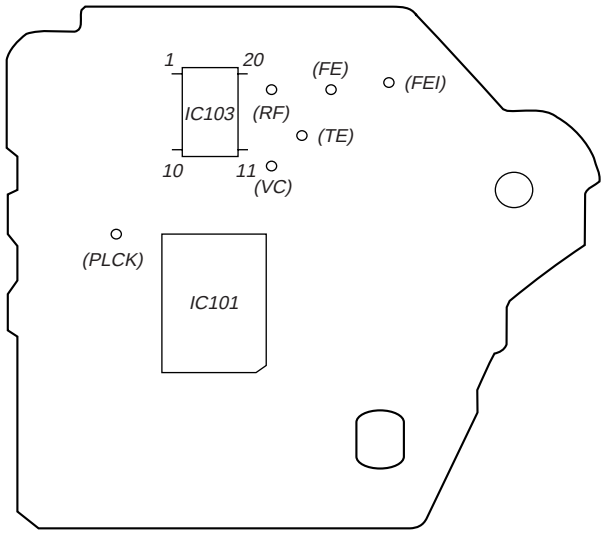
1. Connect frequency counter to test point (PLCK) with lead wire.



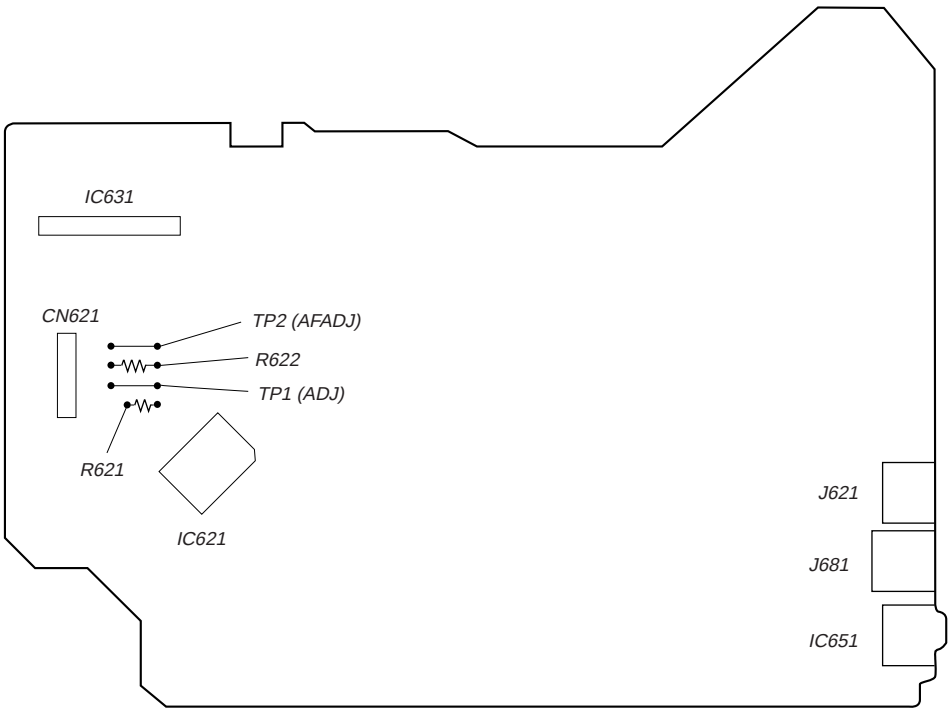
2. Turn Power switch on.
3. Put the disc (YEDS-18) in to play the number five track.
   Confirm that reading on frequency counter is 4.3218MHz.

Adjustment Location :

[BD BOARD] — Side A —



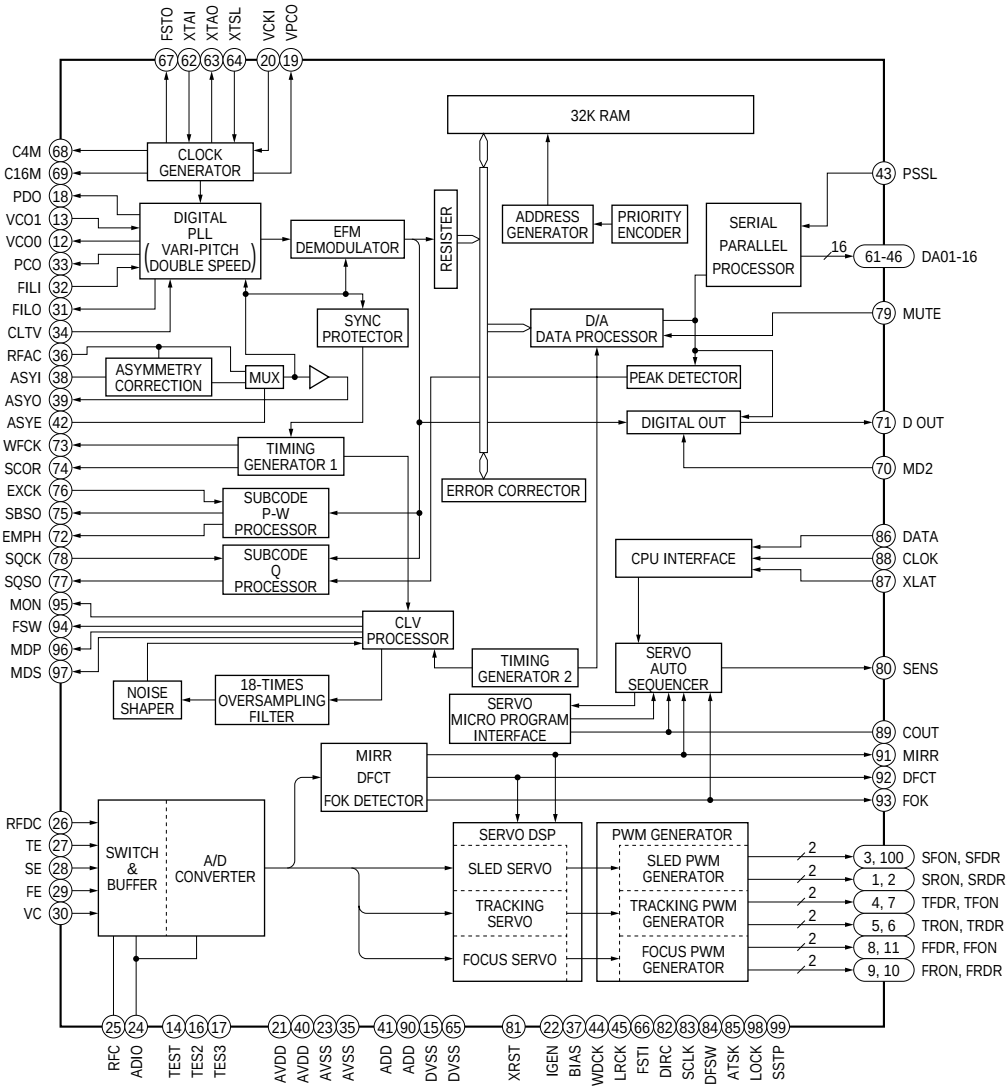
[MAIN BOARD] — Component Side —



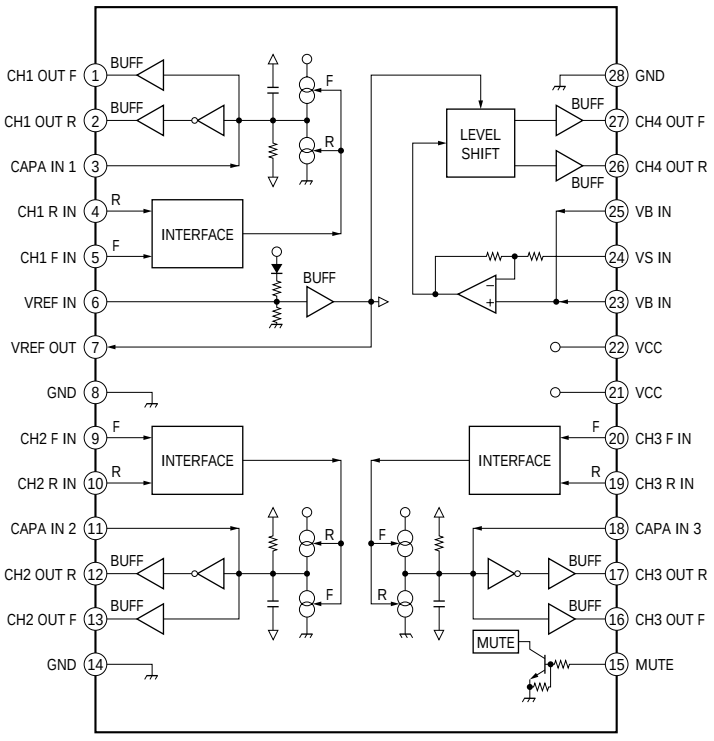
SECTION 6
DIAGRAMS

6-1. IC BLOCK DIAGRAMS

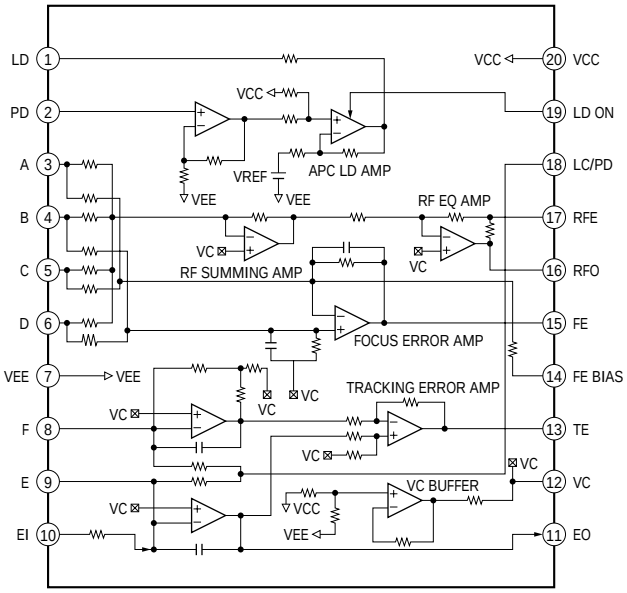
IC101 CXD2545Q



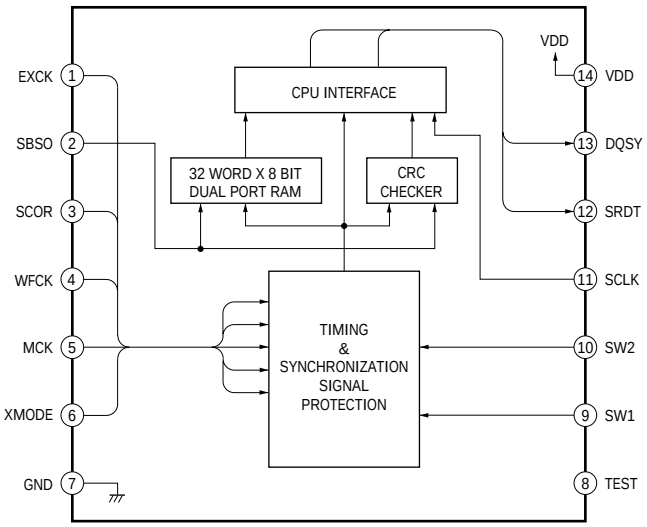
IC102 BA6392FP-T1



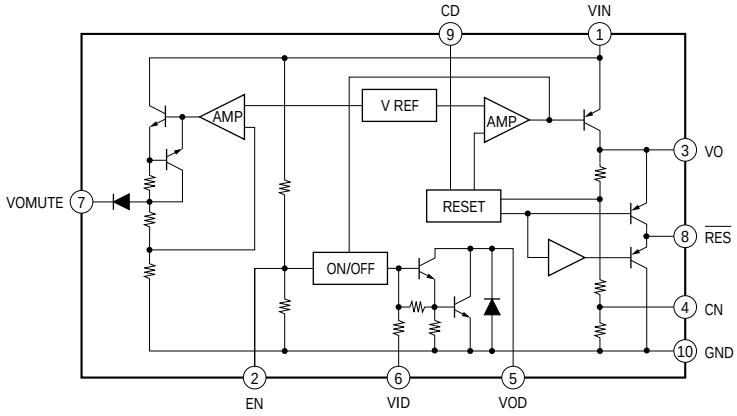
IC103 CXA1821M-T6



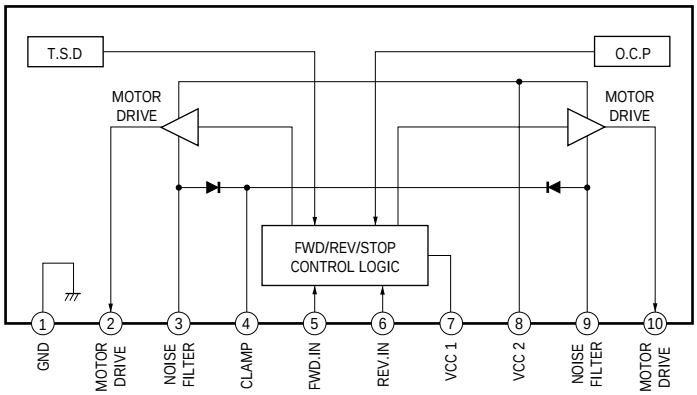
IC104 LC89170M-TLM



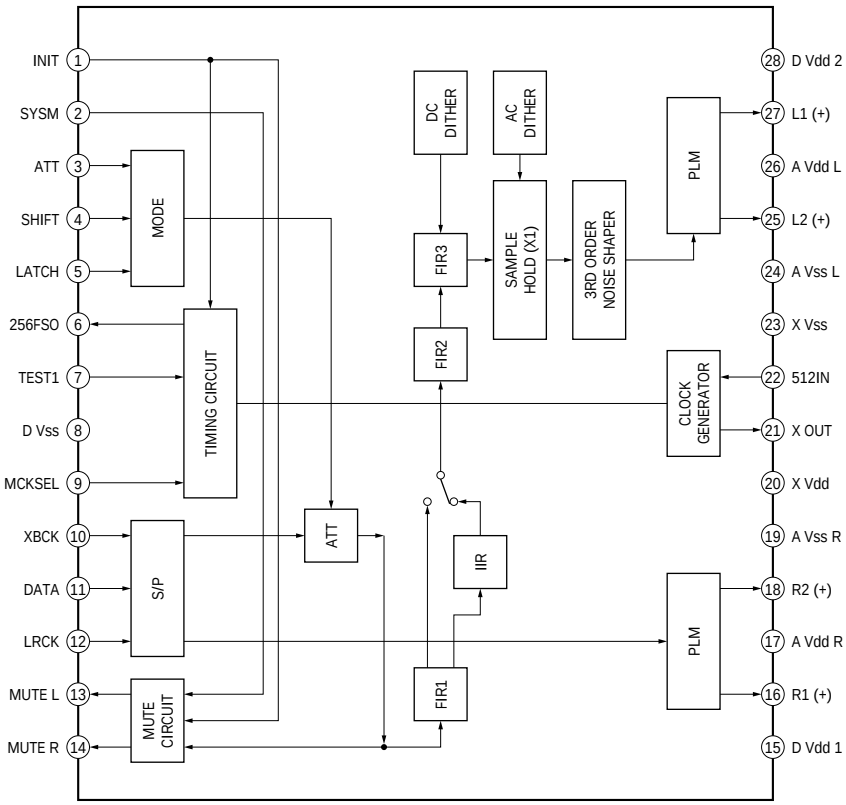
IC611 LA5601



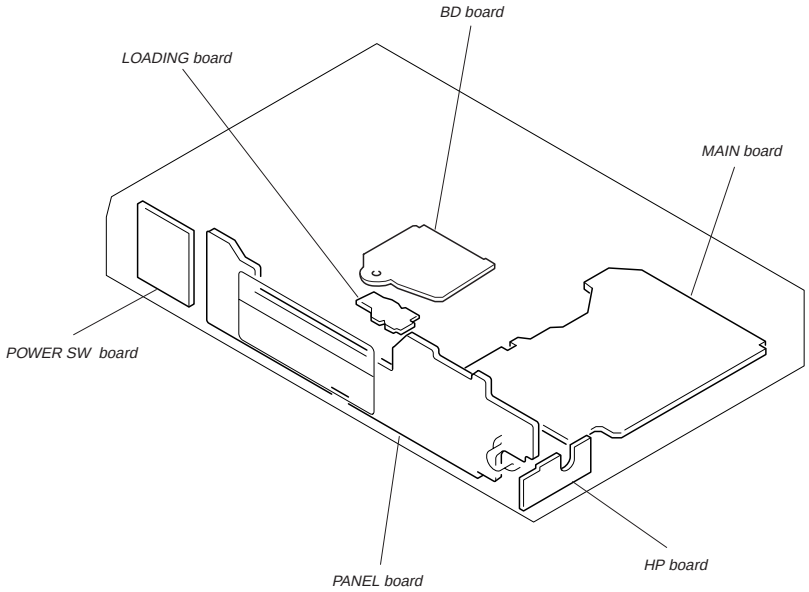
IC631 LB1641



IC661 CXD8567AM



6-2. CIRCUIT BOARDS LOCATION



THIS NOTE IS COMMON FOR PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS.
(In addition to this, the necessary note is printed in each block.)

- **Printed wiring boards.**
- o—— : parts extracted from the component side.
- —— : parts extracted from the conductor side.
- ○ : Through hole.
- ▬ : Pattern from the side which enable seeing. (The other layer's patterns are not indicated.)

- **Schematic diagrams.**
- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4W or less unless otherwise specified.
- △ : internal component.
- ▭ : panel designation.

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- B+ : B+ Line
- B– : B– Line
- Voltage and waveforms are dc with respect to ground under no-signal conditions. no mark : STOP
- Voltages are taken with a VOM (Input impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path. ▨ : CD ▨ : digital out

- **Waveforms**

① 1.3Vp-p
(PLAY)
IC101 ㊱ RFAC

② 2.5V
APPROX 500mVp-p (PLAY)
IC101 ㉗ TE

③ 2.5V
APPROX 200mVp-p (PLAY)
IC101 ㉙ FE

④ 2.6Vp-p, 7.5 μsec
(PLAY)
IC101 ㊻ MDP

⑤ 3.8Vp-p
8MHz
IC621 ㉛ EXTAL

⑥ 4.8Vp-p
16.9MHz
IC661 ⑥ 384FS

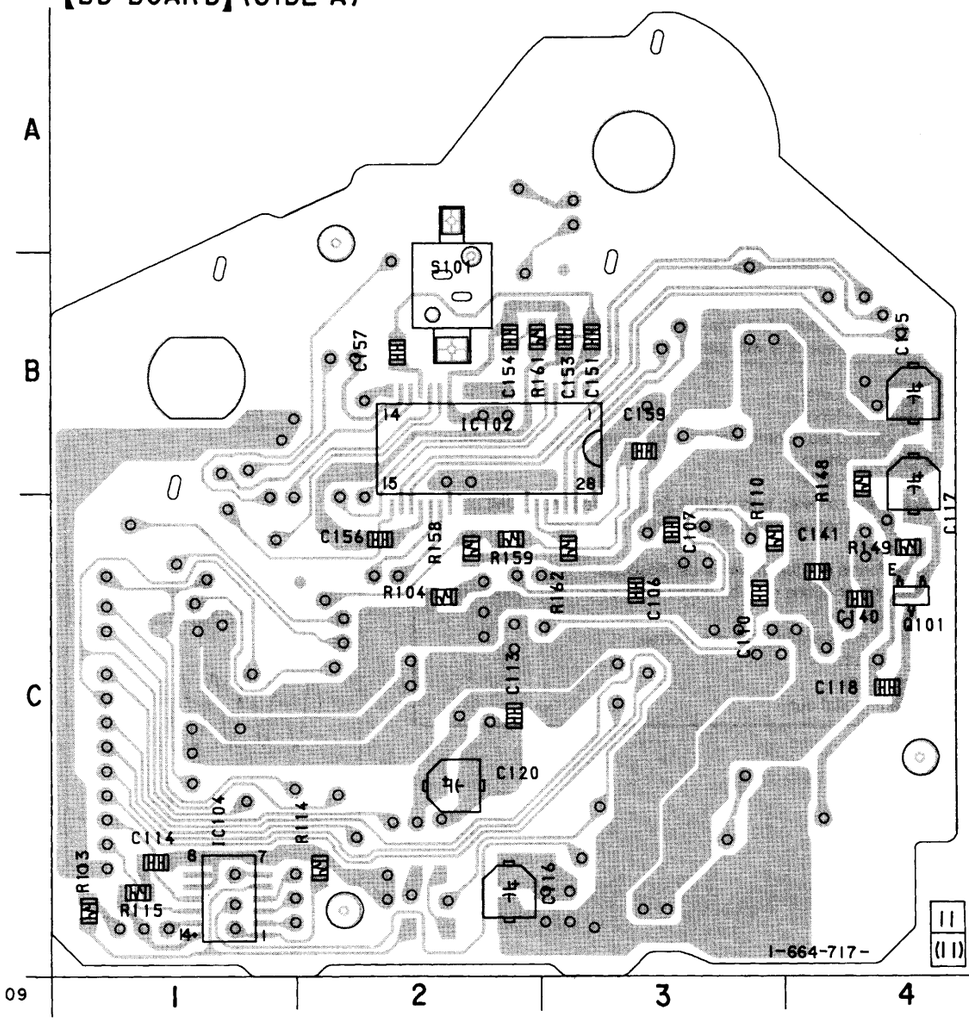
⑦ 5Vp-p
2.1MHz
IC661 ⑩ BCK

⑧ 3.2Vp-p
33.8MHz
IC661 ㉑ XOUT

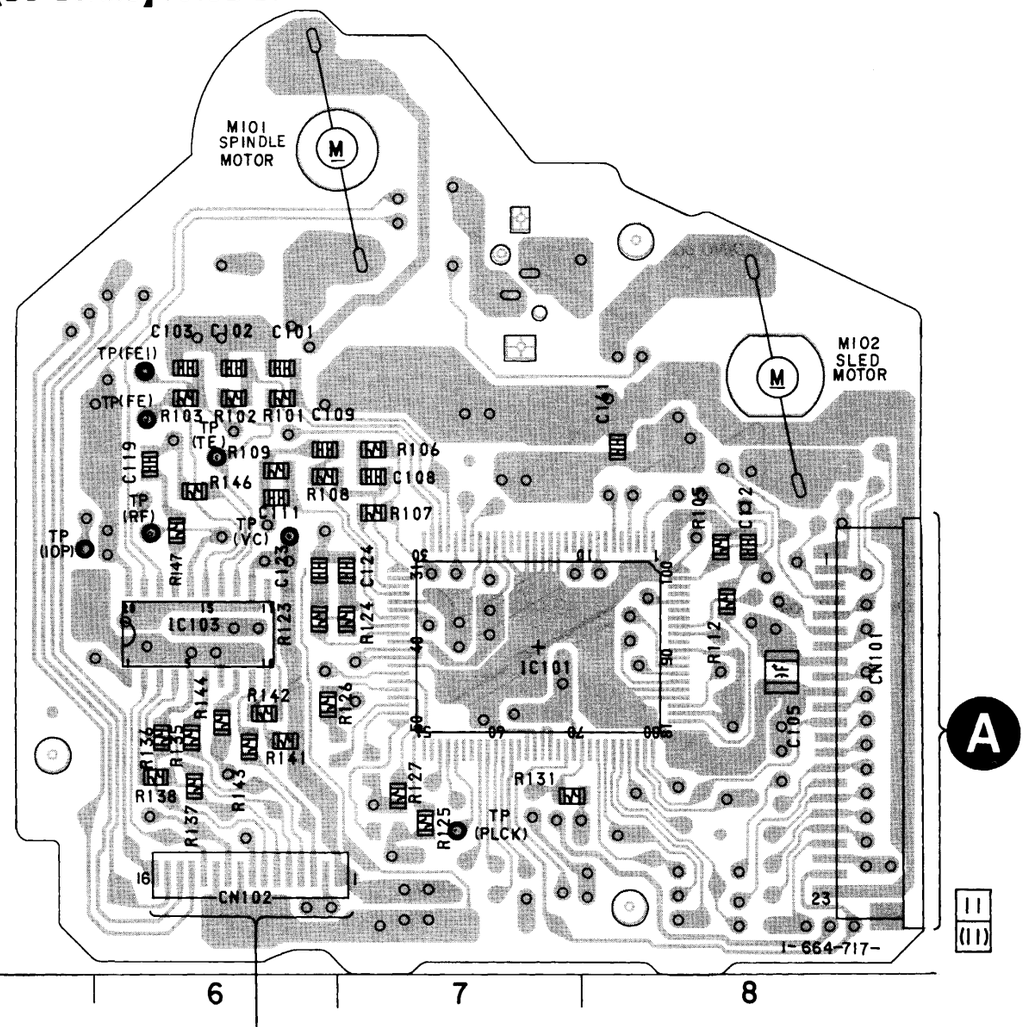
6-3. PRINTED WIRING BOARD — BD SECTION —

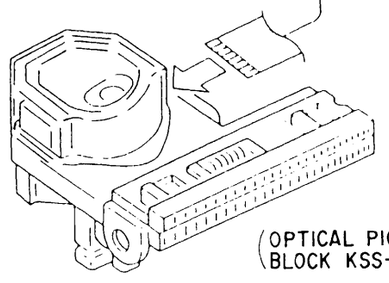
• See page 13 for Circuit Boards Location.

【BD BOARD】(SIDE A)



【BD BOARD】(SIDE B)

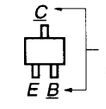




• **Semiconductor Location**

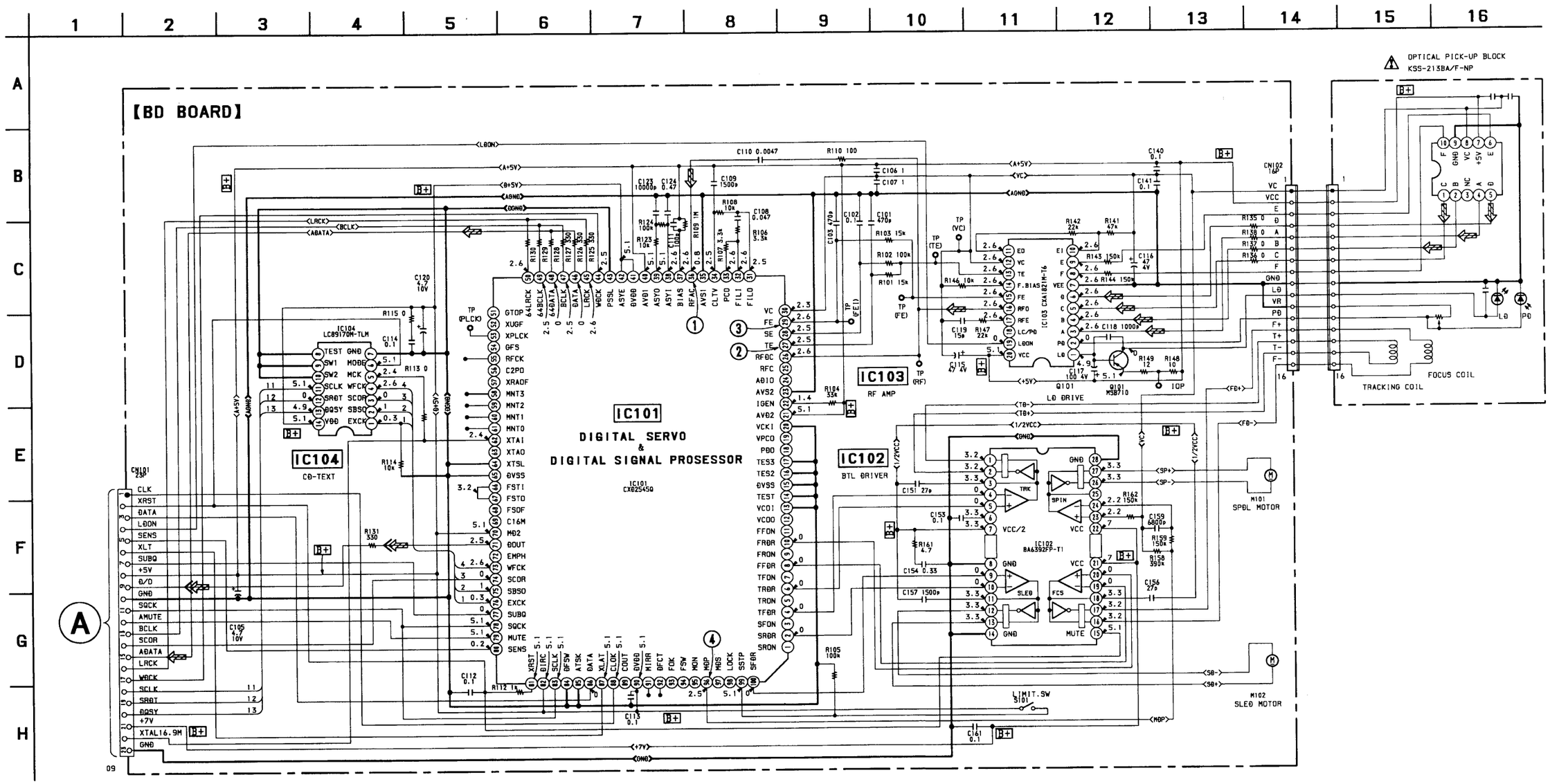
Ref. No.	Location
IC101	C-7
IC102	B-2
IC103	C-6
IC104	C-1
Q101	C-4

Indication of transistor



6-4. SCHEMATIC DIAGRAM — BD SECTION —

- **See page 10 for IC Block Diagrams.**
- **See page 14 for Waveforms.**



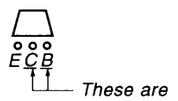
6-5. PRINTED WIRING BOARD — MAIN SECTION —

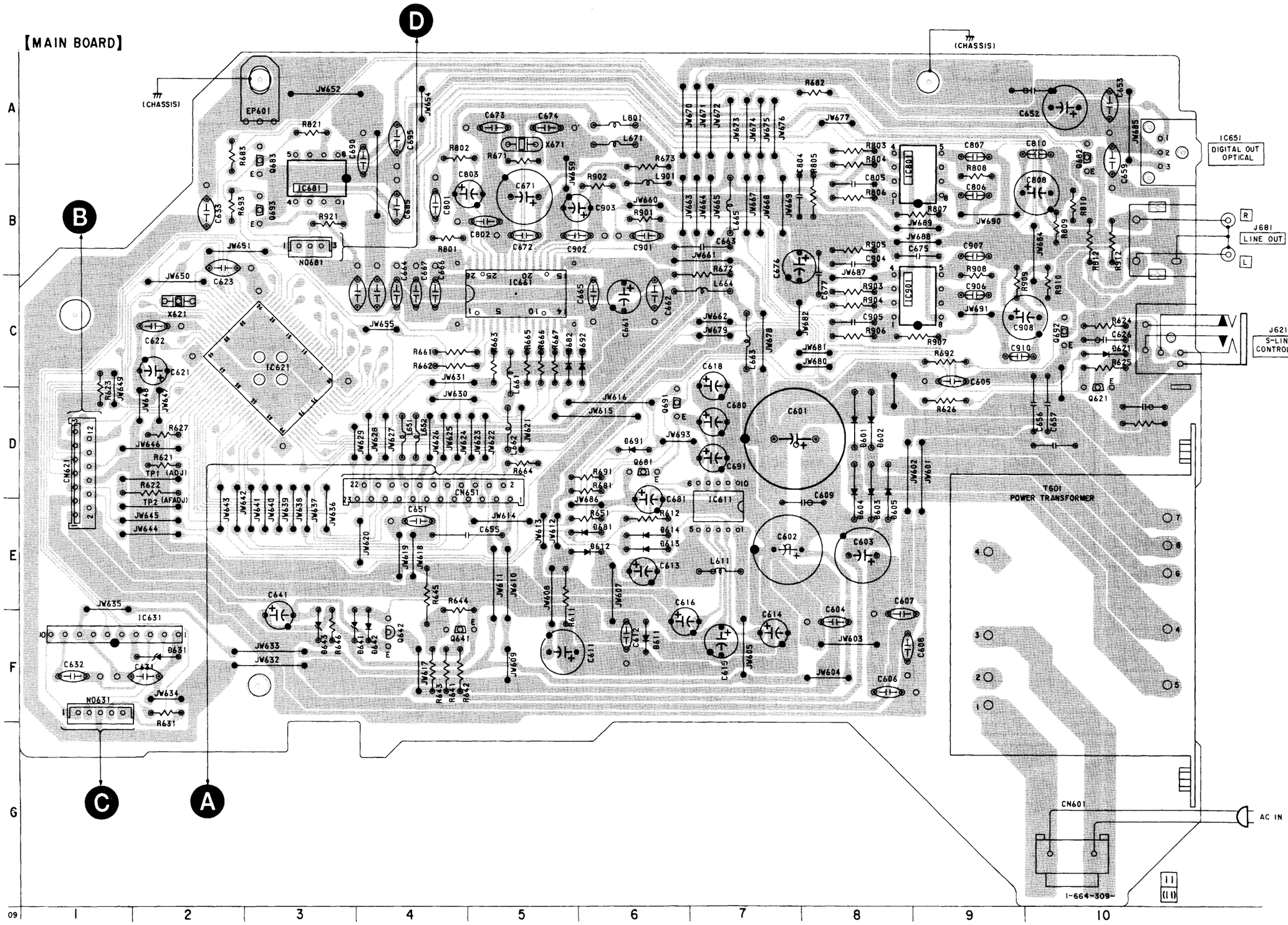
• See page 13 for Circuit Boards Location.

• Semiconductor Location

Ref. No.	Location
D601	D-8
D602	D-8
D603	E-8
D604	E-8
D605	E-8
D611	F-6
D612	E-6
D613	E-6
D614	E-6
D621	C-10
D631	F-2
D641	F-4
D642	F-4
D643	F-3
D681	E-6
D682	C-5
D691	D-6
D692	C-6
IC611	E-7
IC621	C-3
IC631	F-2
IC651	A-11
IC661	C-5
IC681	B-3
IC801	B-9
IC901	C-9
Q621	D-10
Q641	F-4
Q642	F-4
Q681	D-6
Q682	A-10
Q683	A-3
Q691	D-6
Q692	C-10
Q693	B-3

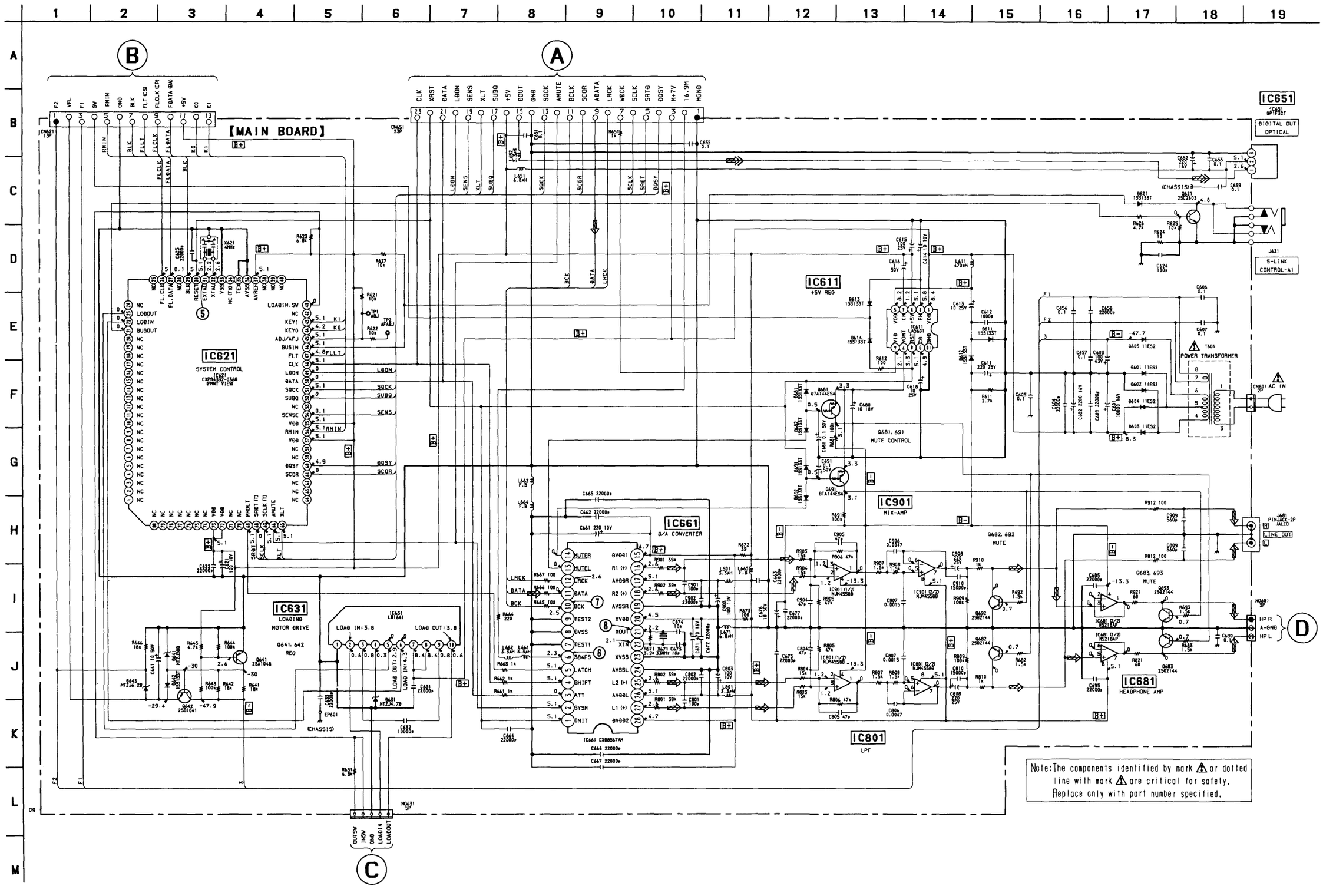
Indication of transistor





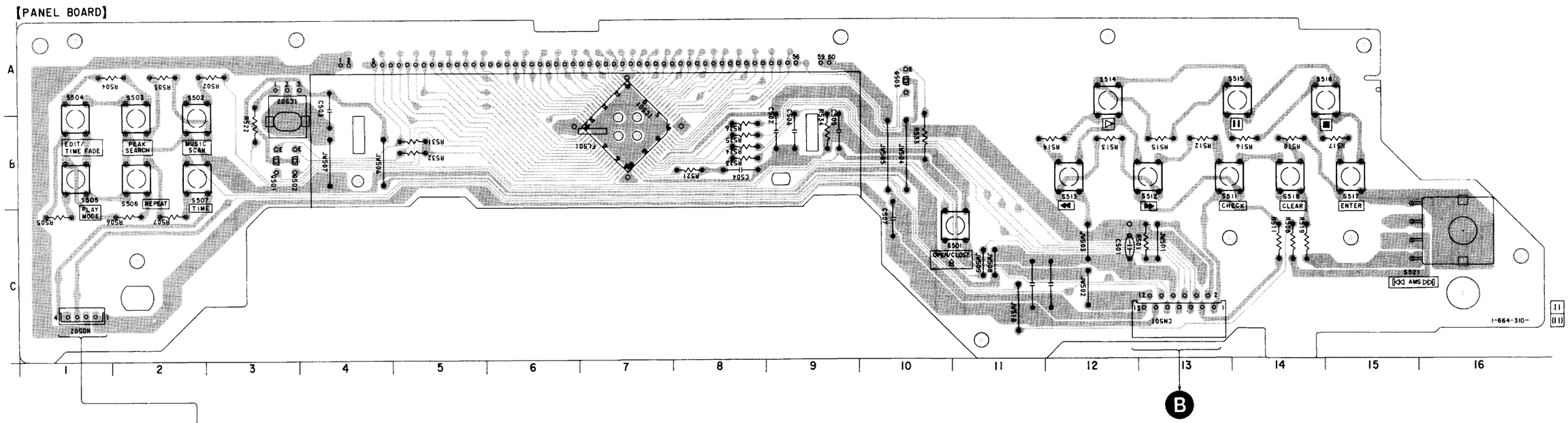
6-6. SCHEMATIC DIAGRAM — MAIN SECTION —

- See page 11 for IC Block Diagrams.
- See page 14 for Waveforms.
- See page 31 for IC Pin Functions.



6-7. PRINTED WIRING BOARD — PANEL SECTION —

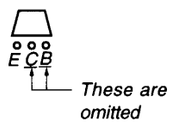
• See page 13 for Circuit Boards Location.



• **Semiconductor Location**

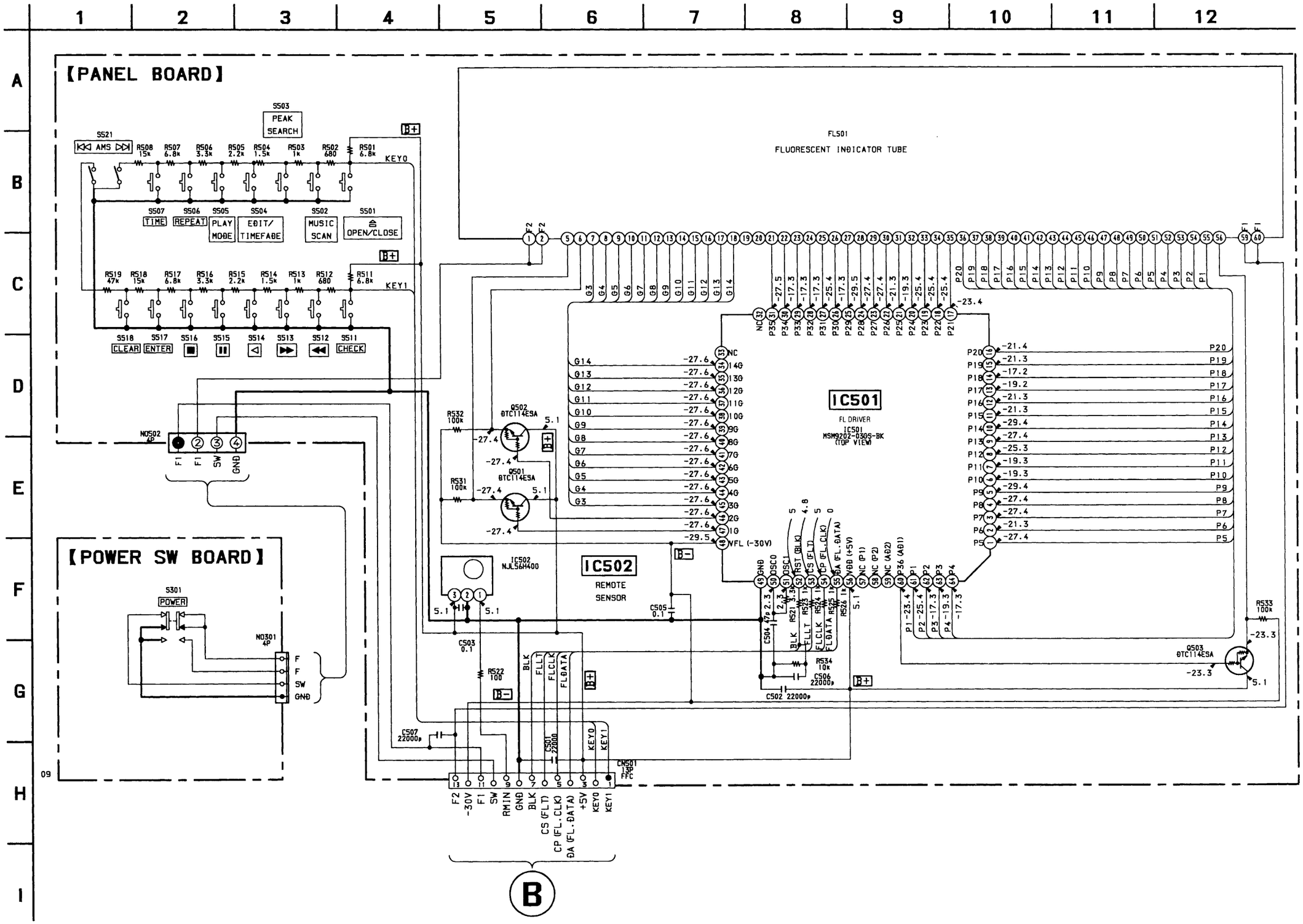
Ref. No.	Location
IC501	A-7
IC502	A-3
Q501	B-3
Q502	B-3
Q503	A-10

Indication of transistor



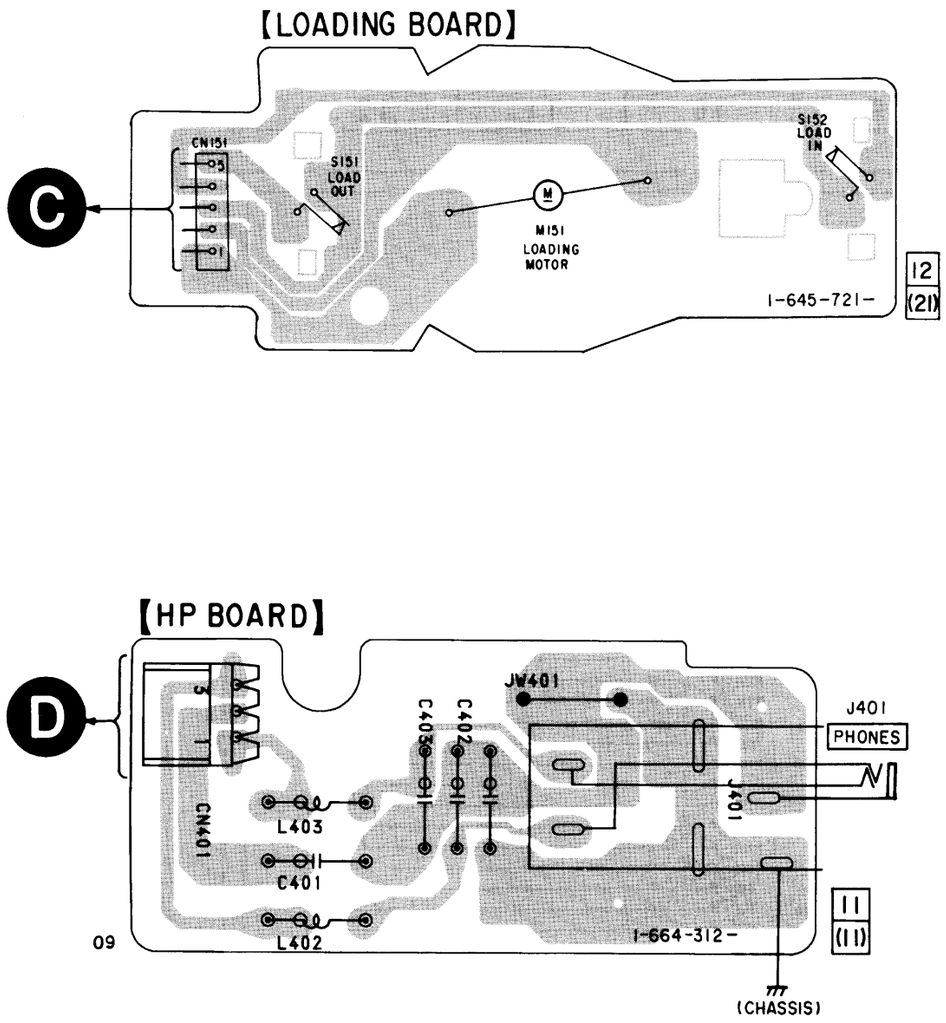
6-8. SCHEMATIC DIAGRAM — PANEL SECTION —

- **See page 14 for Waveforms.**
- **See page 29 for IC Pin Functions.**

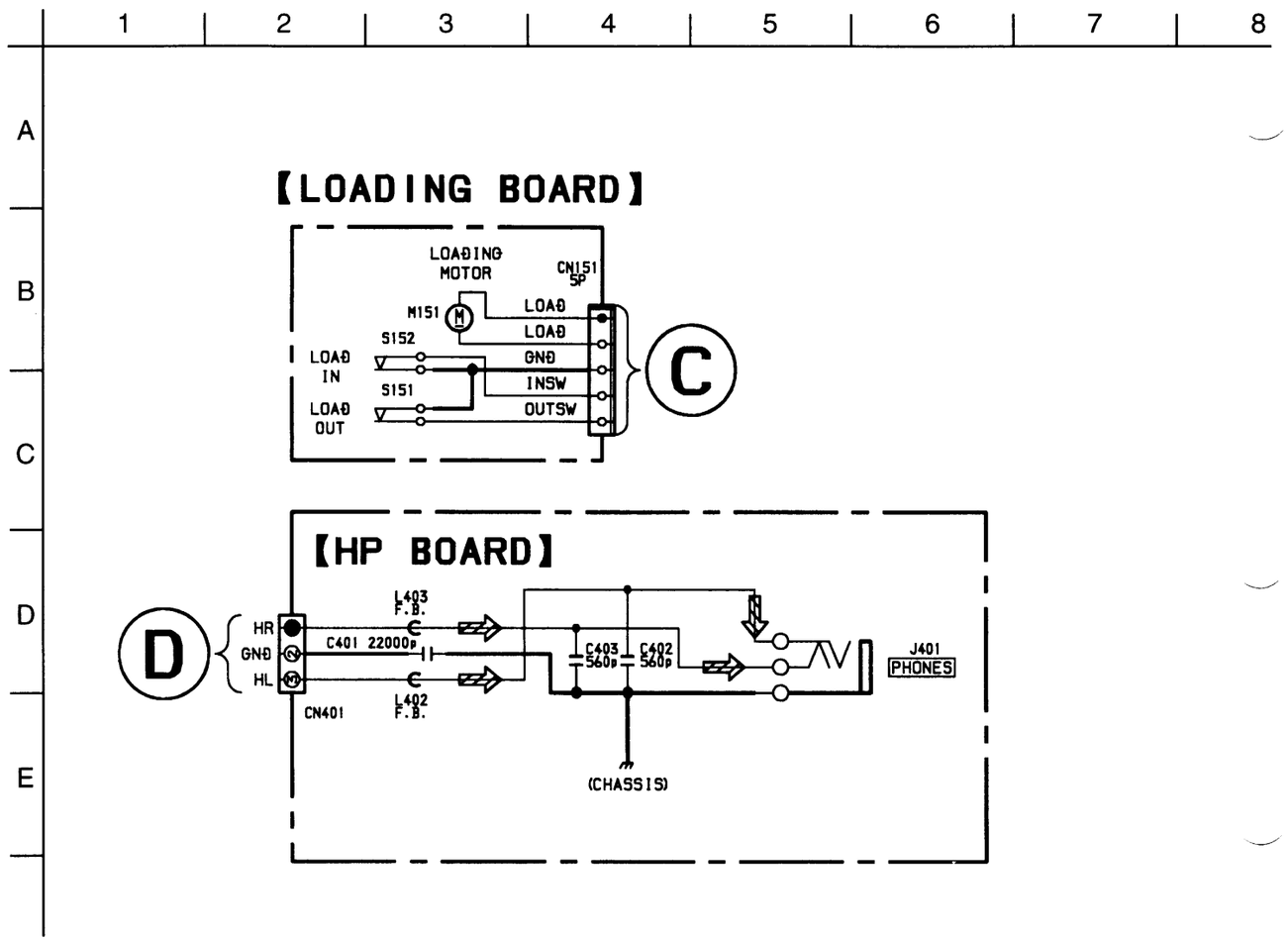


6-9. PRINTED WIRING BOARD — LOADING, HP SECTION —

• See page 13 for Circuit Boards Location.



6-10. SCHEMATIC DIAGRAM — LOADING, HP SECTION —



6-11. IC PIN FUNCTIONS

• IC501 FL DRIVER CONTROL (MSM9202-03GK-BK)

Pin No.	Pin Name	I/O	Function
1	P5	O	Fluorescent display tube anode electrodedrive output terminal
2	P6	O	Fluorescent display tube anode electrodedrive output terminal
3	P7	O	Fluorescent display tube anode electrodedrive output terminal
4	P8	O	Fluorescent display tube anode electrodedrive output terminal
5	P9	O	Fluorescent display tube anode electrodedrive output terminal
6	P10	O	Fluorescent display tube anode electrodedrive output terminal
7	P11	O	Fluorescent display tube anode electrodedrive output terminal
8	P12	O	Fluorescent display tube anode electrodedrive output terminal
9	P13	O	Fluorescent display tube anode electrodedrive output terminal
10	P14	O	Fluorescent display tube anode electrodedrive output terminal
11	P15	O	Fluorescent display tube anode electrodedrive output terminal
12	P16	O	Fluorescent display tube anode electrodedrive output terminal
13	P17	O	Fluorescent display tube anode electrodedrive output terminal
14	P18	O	Fluorescent display tube anode electrodedrive output terminal
15	P19	O	Fluorescent display tube anode electrodedrive output terminal
16	P20	O	Fluorescent display tube anode electrodedrive output terminal
17	P21	O	Fluorescent display tube anode electrodedrive output terminal
18	P22	O	Fluorescent display tube anode electrodedrive output terminal
19	P23	O	Fluorescent display tube anode electrodedrive output terminal
20	P24	O	Fluorescent display tube anode electrodedrive output terminal
21	P25	O	Fluorescent display tube anode electrodedrive output terminal
22	P26	O	Fluorescent display tube anode electrodedrive output terminal
23	P27	O	Fluorescent display tube anode electrodedrive output terminal
24	P28	O	Fluorescent display tube anode electrodedrive output terminal
25	P29	O	Fluorescent display tube anode electrodedrive output terminal
26	P30	O	Fluorescent display tube anode electrodedrive output terminal
27	P31	O	Fluorescent display tube anode electrodedrive output terminal
28	P32	O	Fluorescent display tube anode electrodedrive output terminal
29	P33	O	Fluorescent display tube anode electrodedrive output terminal
30	P34	O	Fluorescent display tube anode electrodedrive output terminal
31	P35	O	Fluorescent display tube anode electrodedrive output terminal
32	NC	O	Not used
33	NC	O	Not used
34	14G	O	Fluorescent display tube grid electrodedrive output terminal
35	13G	O	Fluorescent display tube grid electrodedrive output terminal
36	12G	O	Fluorescent display tube grid electrodedrive output terminal
37	11G	O	Fluorescent display tube grid electrodedrive output terminal
38	10G	O	Fluorescent display tube grid electrodedrive output terminal
39	9G	O	Fluorescent display tube grid electrodedrive output terminal
40	8G	O	Fluorescent display tube grid electrodedrive output terminal

Pin No.	Pin Name	I/O	Function
41	7G	O	Fluorescent display tube grid electrodedrive output terminal
42	6G	O	Fluorescent display tube grid electrodedrive output terminal
43	5G	O	Fluorescent display tube grid electrodedrive output terminal
44	4G	O	uorescent display tube grid electrodedrive output terminal
45	3G	O	Fluorescent display tube grid electrodedrive output terminal
46	2G	O	Fluorescent display tube grid electrodedrive output terminal
47	1G	O	Fluorescent display tube grid electrodedrive output terminal
48	VFL	–	Fluorescent display tube drive power supply
49	GND	–	Ground
50	OSC0	I	CR Oscillation pin
51	OSC1	O	CR Oscillation pin
52	RST	I	Reset input pin
53	CS	I	Chip select pin
54	CP	I	Shift clock input pin
55	DA	I	Serial data input pin
56	V_{DD}	–	Logic power supply
57	NC	O	Not used
58	NC	O	Not used
59	NC	O	Not used
60	P36	O	Fluorescent display tube anode electrodedrive output terminal
61	P1	O	Fluorescent display tube anode electrodedrive output terminal
62	P2	O	Fluorescent display tube anode electrodedrive output terminal
63	P3	O	Fluorescent display tube anode electrodedrive output terminal
64	P4	O	Fluorescent display tube anode electrodedrive output terminal

• Abbreviation
CR : Condenser and resistor

• IC621 SYSTEM CONTROL (CXP84332-036Q)

Pin No.	Pin Name	I/O	Function
1	NC	O	Not used
2	NC	O	Not used
3	NC	O	Not used
4	NC	O	Not used
5	NC	O	Not used
6	NC	O	Not used
7	NC	O	Not used
8	NC	O	Not used
9	NC	O	Not used
10	NC	O	Not used
11	NC	O	Not used
12	NC	O	Not used
13	NC	O	Not used
14	NC	O	Not used
15	NC	O	Not used
16	NC	O	Not used
17	NC	O	Not used
18	NC	O	Not used
19	NC	O	Not used
20	NC	O	Not used
21	BUSOUT	O	CONTROL-A1 out
22	LODOUT	O	Loading motor PWM output for outside direction
23	LODIN	O	Loading motor PWM output for inside direction
24	NC	O	Not used
25	NC	O	Not used
26	FL.CLK	O	Clock for fluorenscent indicator and LED control
27	FL.DATA	O	Data for fluorescent indicator and LED control
28	NC	O	Not used
29	BLK	O	Reset for fluorescent indicator driver IC
30	RESET	I	Reset input L:Reset
31	EXTAL	I	X'tal Oscillation (8MHz)
32	XTAL	I	X'tal Oscillation (8MHz)
33	Vss	–	Ground
34	NC	–	Not used
35	TEX	–	Ground
36	AVss	–	Ground
37	AVREF	–	+5V power supply
38	NC	O	Not used
39	NC	O	Not used
40	NC	O	Not used

• Abbreviation
PWM : Pulse Width Modulation

Pin No.	Pin Name	I/O	Function
41	LOAD IN. SW	I	Loading in switch input
42	NC	O	Not used
43	KEY 1	I	Key input
44	KEY 0	I	Key input
45	ADJ/AFJ	I	Type switching and test mode input
46	BUSIN	I	CONTROL-A1 input L: Active
47	FLT	O	Latch for fluorenscent indicator driver IC
48	CLK	O	Clock for servo IC and digital filter IC
49	LDON	O	Laser diode control H: ON
50	DATA	O	Data for servo IC and digital filter IC
51	SQCK	O	Clock for sub code Q
52	SUBQ	I	Sub code Q data input
53	NC	O	Not used
54	SENSE	I	Servo sensor signal
55	VDD	I	+5V power supply
56	RMIN	I	Remote control signal
57	VDD	I	+5V power supply
58	NC	O	Not used
59	NC	O	Not used
60	DQSY	I	Synchronous signal for CD-TEXT
61	SCOR	I	Sub code Q stnchronous signal Start at rising edge
62	NC	O	Not used
63	NC	O	Not used
64	NC	O	Not used
65	XLT	O	Latch for servo IC
66	A MUTE	O	Audio mute H:Mute ON
67	SCLK	O	Clock for CD-TEXT
68	SRDT	I	CD-TEXT data
69	PRGLT	O	Latch for digital filter IC
70	NC	O	Not used
71	NC	O	Not used
72	VDD	–	+5V power supply
73	VDD	–	+5V power supply
74	NC	O	Not used
75	NC	O	Not used
76	NC	O	Not used
77	NC	O	Not used
78	NC	O	Not used
79	NC	O	Not used
80	NC	O	Not used

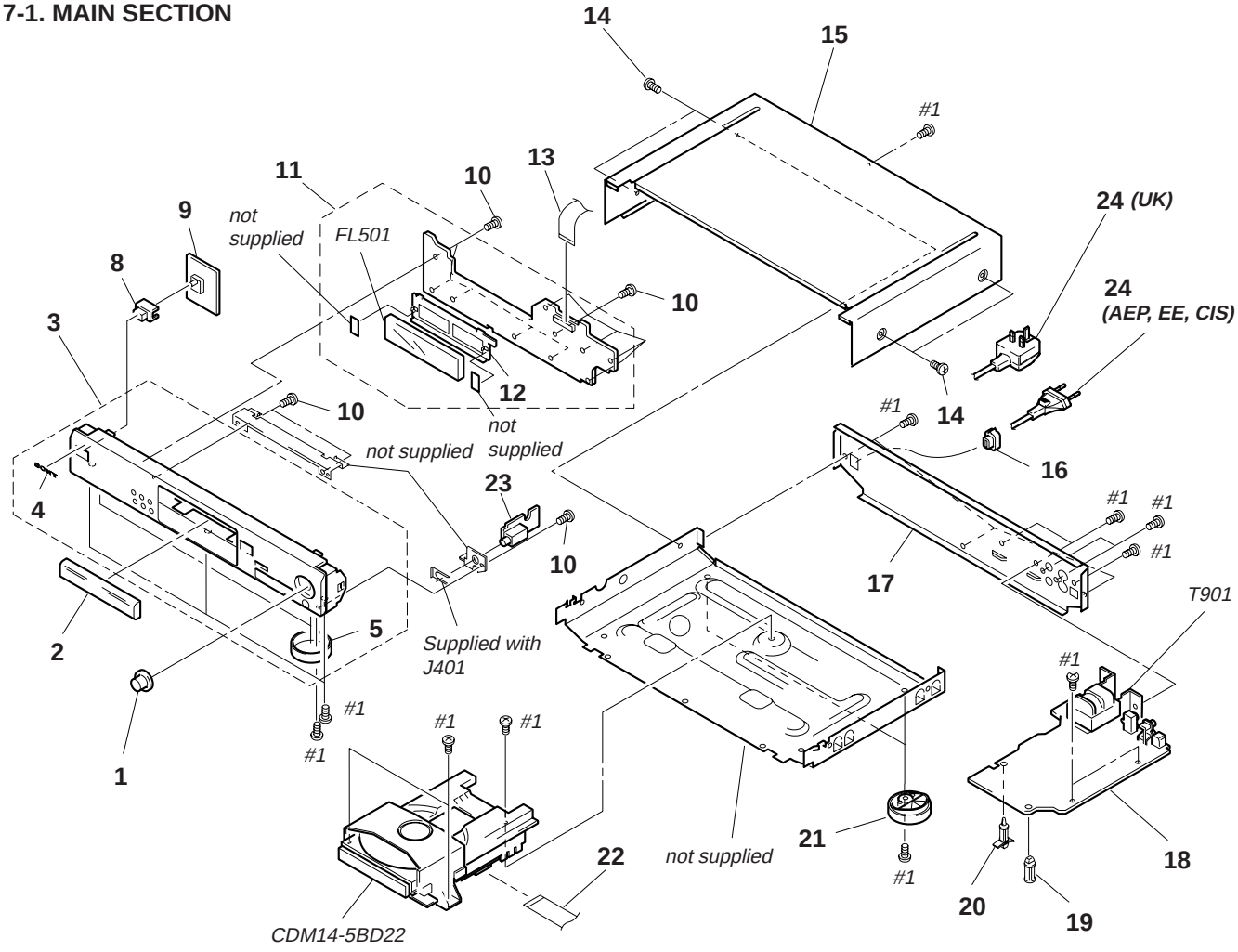
SECTION 7
EXPLODED VIEWS

NOTE:

- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- Color Indication of Appearance Parts Example:
  KNOB, BALANCE (RED)
  ↓
  Cabinets color
- The mechanical parts with no reference number in the exploded views are not supplied.
- Hardware (# mark) list and accessories and packing materials are given in the last of this parts list.
- Abbreviation
  EE : East European model

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

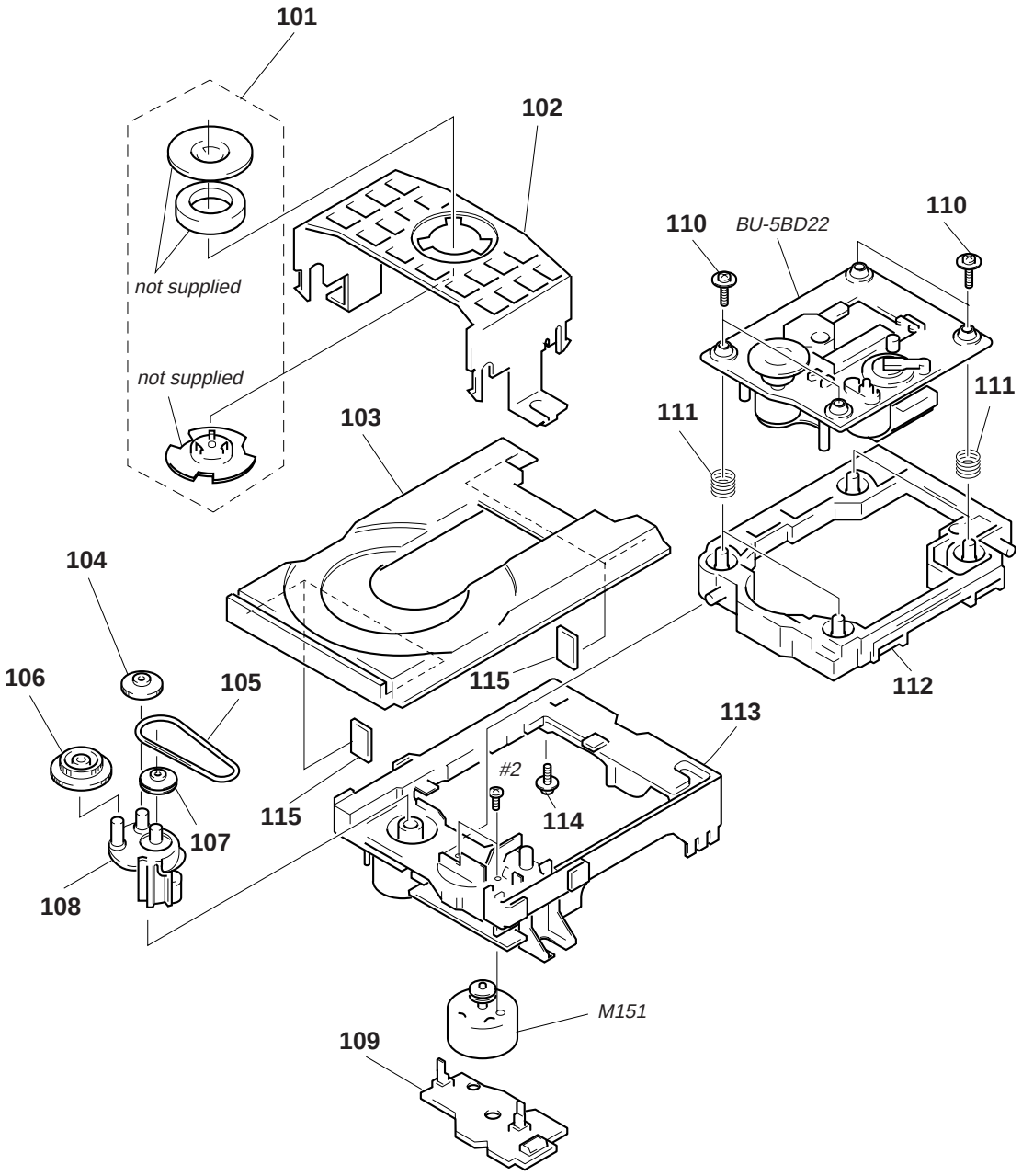
7-1. MAIN SECTION



Ref. No.	Part No.	Description	Remark
1	4-986-500-01	KNOB (AMS)(BLACK)	
1	4-986-500-11	KNOB (AMS)(SILVER)	
2	4-977-588-71	PANEL, LOADING (SILVER)	
2	4-989-252-01	PANEL, LOADING (BLACK)	
3	X-4947-868-2	PANEL ASSY, FRONT (BLACK)	
3	X-4947-901-2	PANEL ASSY, FRONT (SILVER)	
4	4-963-404-21	EMBLEM (5-A), SONY	
5	4-977-593-01	RING (DIA. 50), ORNAMENTAL	
8	4-977-589-01	BUTTON (POWER)(BLACK)	
8	4-977-589-51	BUTTON (POWER)(SILVER)	
* 9	1-664-311-11	POWER SW BOARD	
10	4-951-620-01	SCREW (2.6X8), +BVTP	
* 11	A-4699-484-A	PANEL BOARD, COMPLETE	
* 12	4-987-972-01	GUIDE (FL)	
13	1-769-971-11	WIRE (FLAT TYPE)(13 CORE)	
14	3-363-099-01	SCREW (CASE 3 TP2)(BLACK)	
14	3-363-099-11	SCREW (CASE 3 TP2)(SILVER)	

Ref. No.	Part No.	Description	Remark
* 15	4-978-901-21	CASE (408226)(BLACK)	
* 15	4-978-901-91	CASE (408226)(SILVER)	
16	4-966-267-12	BUSHING (FBS001), CORD	
* 17	4-987-946-01	PANEL, BACK (AEP,EE,CIS)	
* 17	4-987-946-11	PANEL, BACK (UK)	
* 18	A-4699-485-A	MAIN BOARD, COMPLETE (AEP,EE,CIS)	
* 18	A-4699-599-A	MAIN BOARD, COMPLETE (UK)	
* 19	3-349-025-41	HOLDER, PC BOARD	
* 20	4-954-051-51	HOLDER, PC BOARD	
21	X-3371-436-1	FOOT ASSY (F50150S)(SILVER)	
21	X-4947-207-1	FOOT ASSY (F50150S)(BLACK)	
22	1-776-100-11	WIRE (FLAT TYPE)(23 CORE)	
* 23	1-664-312-11	HP BOARD	
⚠24	1-575-651-21	CORD, POWER (AEP,EE,CIS)	
⚠24	1-696-907-11	CORD, POWER (UK)	
FL501	1-517-632-11	INDICATOR TUBE, FLUORESCENT	
⚠T901	1-431-101-11	TRANSFORMER, POWER	

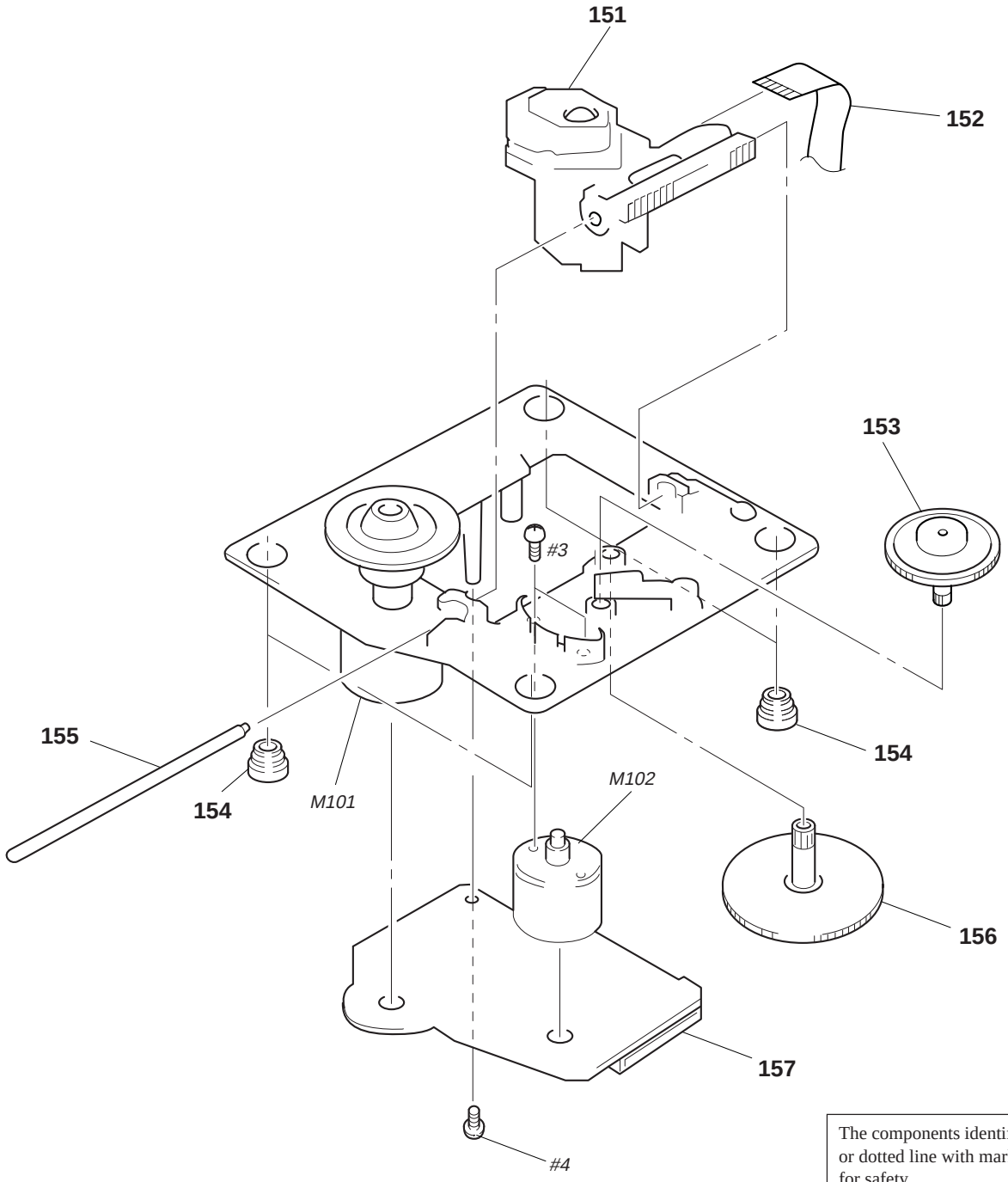
7-2. MECHANISM DECK SECTION (CDM14-5BD22)



Ref. No.	Part No.	Description	Remark
* 101	1-452-538-11	MAGNET	
102	4-933-110-41	HOLDER (MG)	
103	4-933-112-11	TABLE, DISC	
104	4-967-268-01	GEAR (C)	
105	4-927-649-01	BELT	
106	4-933-107-01	GEAR (PL)	
107	4-927-651-01	PULLEY (S)	
108	4-933-109-01	CAM	
* 109	1-645-721-11	LOADING BOARD	

Ref. No.	Part No.	Description	Remark
110	4-933-134-01	SCREW +PTPWH M2.6X6	
111	4-959-996-01	SPRING (932), COMPRESSION	
112	4-933-129-01	HOLDER (BU)	
113	4-933-111-11	CHASSIS (MD)	
* 114	4-917-583-21	BRACKET, YOKE	
115	4-925-315-31	DAMPER	
M151	A-4672-207-A	MOTOR (L) ASSY (LOADING)	

7-3. BASE UNIT SECTION (BU-5BD22)



The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
⚠151	8-848-379-31	OPTICAL PICK-UP KSS-213BA/F-NP	
152	1-769-069-11	WIRE (FLAT TYPE)(16 CORE)	
153	4-917-567-21	GEAR (M)	
154	4-951-940-01	INSULATOR (BU)	
155	4-917-565-01	SHAFT, SLED	
156	4-917-564-01	GEAR (P), FLATNESS	
* 157	A-4699-488-A	BD BOARD, COMPLETE	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	

BD

SECTION 8
ELECTRICAL PARTS LIST

Note:

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

When indicating parts by reference number, please include the board name.

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- RESISTORS
  All resistors are in ohms
  METAL: Metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F : nonflammable
- SEMICONDUCTORS
  In each case, u: µ , for example:
  uA...: µ A..., uPA...: µ PA..., uPB...: µ PB..., uPC...: µ PC..., uPD...: µ PD...
- CAPACITORS
  uF : µ F
- COILS
  uH : µ H
- Abbreviation
  EE : East European model

Ref. No.	Part No.	Description			Remark
*	A-4699-488-A	BD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C102	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C103	1-163-005-11	CERAMIC CHIP	470PF	10%	50V
C105	1-135-155-21	TANTALUM CHIP	4.7uF	10%	16V
C106	1-164-346-11	CERAMIC CHIP	1uF		16V
C107	1-164-346-11	CERAMIC CHIP	1uF		16V
C108	1-163-035-00	CERAMIC CHIP	0.047uF		50V
C109	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C110	1-163-017-00	CERAMIC CHIP	0.0047uF	5%	50V
C111	1-163-251-11	CERAMIC CHIP	100PF	5%	50V
C112	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C113	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C114	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C115	1-126-607-11	ELECT CHIP	47uF	20%	4V
C116	1-126-607-11	ELECT CHIP	47uF	20%	4V
C117	1-126-209-11	ELECT	100uF	20%	4V
C118	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
C119	1-163-231-11	CERAMIC CHIP	15PF	5%	50V
C120	1-124-778-00	ELECT CHIP	22uF	20%	6.3V
C123	1-164-232-11	CERAMIC CHIP	0.01uF		50V
C124	1-164-005-11	CERAMIC CHIP	0.47uF		25V
C140	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C141	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C151	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C153	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C154	1-164-336-11	CERAMIC CHIP	0.33uF		25V
C156	1-163-237-11	CERAMIC CHIP	27PF	5%	50V
C157	1-163-145-00	CERAMIC CHIP	0.0015uF	5%	50V
C159	1-163-019-00	CERAMIC CHIP	0.0068uF	10%	50V
C161	1-163-038-91	CERAMIC CHIP	0.1uF		25V
		< CONNECTOR >			
CN101	1-770-072-11	CONNECTOR,(LIF(NON-ZIF))FFC23P			
CN102	1-770-014-11	CONNECTOR, FFC/FPC 16P			
		< IC >			
IC101	8-752-369-78	IC CXD2545Q			
IC102	8-759-176-09	IC BA6392FP			
IC103	8-752-072-45	IC CXA1821M-T6			
IC104	8-759-428-57	IC LC89170M-TLM			

Ref. No.	Part No.	Description			Remark
		< TRANSISTOR >			
Q101	8-729-010-08	TRANSISTOR MSB710-R			
		< RESISTOR >			
R101	1-216-077-00	METAL CHIP	15K	5%	1/10W
R102	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R103	1-216-077-00	METAL CHIP	15K	5%	1/10W
R104	1-216-085-00	METAL CHIP	33K	5%	1/10W
R105	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R106	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R107	1-216-061-00	METAL CHIP	3.3K	5%	1/10W
R108	1-216-073-00	METAL CHIP	10K	5%	1/10W
R109	1-216-121-91	METAL GLAZE	1M	5%	1/10W
R110	1-216-025-91	METAL GLAZE	100	5%	1/10W
R112	1-216-049-91	METAL GLAZE	1K	5%	1/10W
R113	1-216-295-91	CONDUCTOR, CHIP (2012)			
R114	1-216-073-00	METAL CHIP	10K	5%	1/10W
R115	1-216-295-91	CONDUCTOR, CHIP (2012)			
R123	1-216-073-00	METAL CHIP	10K	5%	1/10W
R124	1-216-097-91	METAL GLAZE	100K	5%	1/10W
R125	1-216-037-00	METAL CHIP	330	5%	1/10W
R126	1-216-037-00	METAL CHIP	330	5%	1/10W
R127	1-216-037-00	METAL CHIP	330	5%	1/10W
R131	1-216-037-00	METAL CHIP	330	5%	1/10W
R135	1-216-295-91	CONDUCTOR, CHIP (2012)			
R136	1-216-295-91	CONDUCTOR, CHIP (2012)			
R137	1-216-295-91	CONDUCTOR, CHIP (2012)			
R138	1-216-295-91	CONDUCTOR, CHIP (2012)			
R141	1-216-089-91	METAL GLAZE	47K	5%	1/10W
R142	1-216-081-00	METAL CHIP	22K	5%	1/10W
R143	1-216-101-00	METAL CHIP	150K	5%	1/10W
R144	1-216-101-00	METAL CHIP	150K	5%	1/10W
R146	1-216-073-00	METAL CHIP	10K	5%	1/10W
R147	1-216-081-00	METAL CHIP	22K	5%	1/10W
R148	1-216-001-00	METAL CHIP	10	5%	1/10W
R149	1-216-003-11	METAL GLAZE	12	5%	1/10W
R158	1-216-111-91	METAL GLAZE	390K	5%	1/10W
R159	1-216-101-00	METAL CHIP	150K	5%	1/10W
R161	1-216-308-00	METAL CHIP	4.7	5%	1/10W
R162	1-216-101-00	METAL CHIP	150K	5%	1/10W
		< SWITCH >			
S101	1-572-085-11	SWITCH, LEAF (LIMIT)			

****

Ref. No.	Part No.	Description			Remark
*	1-664-312-11	HP BOARD			
		********			
*	7-611-031-11	WIRE, TINNING COPPER			
		< CAPACITOR >			
C401	1-161-494-00	CERAMIC	0.022uF	30%	25V
C402	1-162-291-31	CERAMIC	560PF	10%	50V
C403	1-162-291-31	CERAMIC	560PF	10%	50V
		< CONNECTOR >			
* CN401	1-568-941-11	PIN, CONNECTOR 3P			
		< JACK >			
J401	1-770-307-11	JACK (LARGE TYPE)(PHONES)			
		< COIL >			
L402	1-410-397-21	FERRITE BEAD INDUCTOR			
L403	1-410-397-21	FERRITE BEAD INDUCTOR			
**********					
*	1-645-721-11	LOADING BOARD			
		**********			
		< CONNECTOR >			
* CN151	1-568-943-11	PIN, CONNECTOR 5P			
		< SWITCH >			
S151	1-572-086-11	SWITCH, LEAF (LOAD OUT)			
S152	1-572-086-11	SWITCH, LEAF (LOAD IN)			
**********					
*	A-4699-485-A	MAIN BOARD, COMPLETE (AEP,EE,CIS)			
		**********			
*	A-4699-599-A	MAIN BOARD, COMPLETE (UK)			
		**********			
		< CAPACITOR >			
C601	1-126-939-11	ELECT	10000uF	20%	16V
C602	1-126-768-11	ELECT	2200uF	20%	16V
C603	1-128-576-11	ELECT	100uF	20%	63V
C604	1-161-494-00	CERAMIC	0.022uF		25V
C605	1-164-159-21	CERAMIC	0.1uF		50V
C606	1-164-159-21	CERAMIC	0.1uF		50V
C607	1-164-159-21	CERAMIC	0.1uF		50V
C608	1-161-494-00	CERAMIC	0.022uF	30%	25V
C609	1-161-494-00	CERAMIC	0.022uF		25V
C611	1-104-666-11	ELECT	220uF	20%	25V
C612	1-162-294-31	CERAMIC	0.001uF	10%	50V
C613	1-126-964-11	ELECT	10uF	20%	50V
C614	1-126-964-11	ELECT	10uF	20%	50V
C615	1-126-935-11	ELECT	100uF	20%	16V
C616	1-124-903-11	ELECT	1uF	20%	50V
C618	1-126-964-11	ELECT	10uF	20%	50V
C621	1-126-933-11	ELECT	100uF	20%	16V
C622	1-161-494-00	CERAMIC	0.022uF		25V

Ref. No.	Part No.	Description			Remark
C623	1-161-494-00	CERAMIC	0.022uF		25V
C626	1-162-282-31	CERAMIC	100PF	10%	50V
C631	1-161-494-00	CERAMIC	0.022uF		25V
C632	1-162-306-11	CERAMIC	0.01uF	20%	16V
C633	1-161-494-00	CERAMIC	0.022uF		25V
C641	1-126-964-11	ELECT	10uF	20%	50V
C651	1-164-159-21	CERAMIC	0.1uF		50V
C652	1-104-666-11	ELECT	220uF	20%	25V
C653	1-161-494-00	CERAMIC	0.022uF		25V
C655	1-164-159-21	CERAMIC	0.1uF		50V
C656	1-164-159-21	CERAMIC	0.1uF		50V
C657	1-164-159-21	CERAMIC	0.1uF		50V
C659	1-164-159-21	CERAMIC	0.1uF		50V
C661	1-104-666-11	ELECT	220uF	20%	25V
C662	1-161-494-00	CERAMIC	0.022uF		25V
C663	1-161-494-00	CERAMIC	0.022uF		25V
C664	1-161-494-00	CERAMIC	0.022uF		25V
C665	1-161-494-00	CERAMIC	0.022uF		25V
C666	1-161-494-00	CERAMIC	0.022uF		25V
C667	1-161-494-00	CERAMIC	0.022uF		25V
C671	1-126-103-11	ELECT	470uF	20%	16V
C672	1-161-494-00	CERAMIC	0.022uF		25V
C673	1-162-199-31	CERAMIC	10PF	5%	50V
C674	1-162-199-31	CERAMIC	10PF	5%	50V
C675	1-161-494-00	CERAMIC	0.022uF		25V
C676	1-104-666-11	ELECT	220uF	20%	25V
C677	1-161-494-00	CERAMIC	0.022uF		25V
C680	1-126-964-11	ELECT	10uF	20%	50V
C681	1-124-903-11	ELECT	1uF	20%	50V
C685	1-161-494-00	CERAMIC	0.022uF		25V
C690	1-164-159-21	CERAMIC	0.1uF		50V
C691	1-124-903-11	ELECT	1uF	20%	50V
C695	1-161-494-00	CERAMIC	0.022uF		25V
C801	1-162-282-31	CERAMIC	100PF	10%	50V
C802	1-161-494-00	CERAMIC	0.022uF		25V
C803	1-126-933-11	ELECT	100uF	20%	16V
C804	1-162-215-31	CERAMIC	47PF	5%	50V
C805	1-162-215-31	CERAMIC	47PF	5%	50V
C806	1-130-479-00	MYLAR	0.0047uF	5%	50V
C807	1-130-473-00	MYLAR	0.0012uF	5%	50V
C808	1-126-024-11	ELECT	220uF	20%	25V
C810	1-136-802-11	FILM	0.015uF	5%	100V
C901	1-162-282-31	CERAMIC	100PF	10%	50V
C902	1-161-494-00	CERAMIC	0.022uF		25V
C903	1-126-933-11	ELECT	100uF	20%	16V
C904	1-162-215-31	CERAMIC	47PF	5%	50V
C905	1-162-215-31	CERAMIC	47PF	5%	50V
C906	1-130-479-00	MYLAR	0.0047uF	5%	50V
C907	1-130-473-00	MYLAR	0.0012uF	5%	50V
C908	1-126-024-11	ELECT	220uF	20%	25V
C910	1-136-802-11	FILM	0.015uF	5%	100V
		< CONNECTOR >			
CN601	1-580-230-11	PIN, CONNECTOR (PC BOARD) 2P			
CN621	1-568-832-11	SOCKET, CONNECTOR 13P			
CN651	1-568-839-11	SOCKET, CONNECTOR 23P			

MAIN

Ref. No.	Part No.	Description	Remark
		< DIODE >	
D601	8-719-200-82	DIODE 11ES2	
D602	8-719-200-82	DIODE 11ES2	
D603	8-719-200-82	DIODE 11ES2	
D604	8-719-200-82	DIODE 11ES2	
D605	8-719-200-82	DIODE 11ES2	
D611	8-719-991-33	DIODE 1SS133T-77	
D612	8-719-991-33	DIODE 1SS133T-77	
D613	8-719-991-33	DIODE 1SS133T-77	
D614	8-719-991-33	DIODE 1SS133T-77	
D621	8-719-991-33	DIODE 1SS133T-77	
D631	8-719-010-34	DIODE UZ-4.7BSC	
D641	8-719-982-22	DIODE MTZJ-30D	
D642	8-719-991-33	DIODE 1SS133T-77	
D643	8-719-109-93	DIODE RD6.2ESB2	
D681	8-719-991-33	DIODE 1SS133T-77	
D682	8-719-991-33	DIODE 1SS133T-77	
D691	8-719-991-33	DIODE 1SS133T-77	
D692	8-719-991-33	DIODE 1SS133T-77	
		< GROUND TERMINAL >	
EP601	1-537-770-21	TERMINAL BOARD, GROUND	
		< IC >	
IC611	8-759-821-93	IC LA5601	
IC621	8-752-880-21	IC CXP84332-036Q	
IC631	8-759-822-09	IC LB1641	
IC651	8-749-921-12	IC GP1F32T (DIGITAL OUT OPTICAL)	
IC661	8-759-362-47	IC CXD8567AM	
IC681	8-759-634-51	IC M5218AP	
IC801	8-759-634-51	IC M5218AP	
IC901	8-759-634-51	IC M5218AP	
		< JACK >	
J621	1-774-726-11	JACK (S-LINK CONTROL-A1)	
J681	1-770-719-11	JACK, PIN 2P (LINE OUT)	
		< COIL >	
L611	1-414-223-11	INDUCTOR 470uH	
L651	1-410-507-11	INDUCTOR 6.8uH	
L652	1-410-322-11	INDUCTOR 3.3uH	
L661	1-410-322-11	INDUCTOR 3.3uH	
L662	1-410-322-11	INDUCTOR 3.3uH	
L663	1-412-473-41	INDUCTOR 0uH	
L664	1-412-473-41	INDUCTOR 0uH	
L665	1-412-473-41	INDUCTOR 0uH	
L671	1-410-507-11	INDUCTOR 6.8uH	
L801	1-410-322-11	INDUCTOR 3.3uH	
L901	1-410-322-11	INDUCTOR 3.3uH	
		< TRANSISTOR >	
Q621	8-729-620-05	TRANSISTOR 2SC2603-EF	
Q641	8-729-119-76	TRANSISTOR 2SA1175-HFE	
Q642	8-729-019-65	TRANSISTOR 2SB1041T103	
Q681	8-729-029-56	TRANSISTOR DTA144ESA	
Q682	8-729-922-37	TRANSISTOR 2SD2144S	
Q683	8-729-922-37	TRANSISTOR 2SD2144S	
Q691	8-729-029-56	TRANSISTOR DTA144ESA	
Q692	8-729-922-37	TRANSISTOR 2SD2144S	
Q693	8-729-922-37	TRANSISTOR 2SD2144S	
		< RESISTOR >	
R611	1-249-422-11	CARBON 2.7K 5% 1/4W F	
R612	1-247-807-31	CARBON 100 5% 1/4W	
R621	1-249-429-11	CARBON 10K 5% 1/4W	
R622	1-249-429-11	CARBON 10K 5% 1/4W	
R623	1-249-427-11	CARBON 6.8K 5% 1/4W F	
R624	1-249-393-11	CARBON 10 5% 1/4W F	
R625	1-249-429-11	CARBON 10K 5% 1/4W	
R626	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R627	1-249-429-11	CARBON 10K 5% 1/4W	
R631	1-249-427-11	CARBON 6.8K 5% 1/4W F	
R641	1-249-432-11	CARBON 18K 5% 1/4W	
R642	1-249-432-11	CARBON 18K 5% 1/4W	
R643	1-249-441-11	CARBON 100K 5% 1/4W	
R644	1-249-441-11	CARBON 100K 5% 1/4W	
R645	1-249-425-11	CARBON 4.7K 5% 1/4W F	
R646	1-249-432-11	CARBON 18K 5% 1/4W	
R651	1-249-417-11	CARBON 1K 5% 1/4W F	
R661	1-249-417-11	CARBON 1K 5% 1/4W F	
R662	1-249-417-11	CARBON 1K 5% 1/4W F	
R663	1-249-417-11	CARBON 1K 5% 1/4W F	
R664	1-247-815-91	CARBON 220 5% 1/4W	
R665	1-247-807-31	CARBON 100 5% 1/4W	
R666	1-247-807-31	CARBON 100 5% 1/4W	
R667	1-247-807-31	CARBON 100 5% 1/4W	
R671	1-249-424-11	CARBON 3.9K 5% 1/4W F	
R672	1-249-401-11	CARBON 47 5% 1/4W F	
R673	1-247-807-31	CARBON 100 5% 1/4W	
R681	1-249-441-11	CARBON 100K 5% 1/4W	
R682	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R683	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R691	1-249-441-11	CARBON 100K 5% 1/4W	
R692	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R693	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R801	1-249-436-11	CARBON 39K 5% 1/4W	
R802	1-249-436-11	CARBON 39K 5% 1/4W	
R803	1-249-431-11	CARBON 15K 5% 1/4W	
R804	1-249-431-11	CARBON 15K 5% 1/4W	
R805	1-249-437-11	CARBON 47K 5% 1/4W	
R806	1-249-437-11	CARBON 47K 5% 1/4W	
R807	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R808	1-249-419-11	CARBON 1.5K 5% 1/4W F	
R809	1-249-441-11	CARBON 100K 5% 1/4W	
R810	1-249-414-11	CARBON 560 5% 1/4W F	
R812	1-247-807-31	CARBON 100 5% 1/4W	
R821	1-249-403-11	CARBON 68 5% 1/4W F	
R901	1-249-436-11	CARBON 39K 5% 1/4W	
R902	1-249-436-11	CARBON 39K 5% 1/4W	
R903	1-249-431-11	CARBON 15K 5% 1/4W	
R904	1-249-431-11	CARBON 15K 5% 1/4W	
R905	1-249-437-11	CARBON 47K 5% 1/4W	
R906	1-249-437-11	CARBON 47K 5% 1/4W	
R907	1-249-419-11	CARBON 1.5K 5% 1/4W F	

Ref. No.	Part No.	Description			Remark
R908	1-249-419-11	CARBON	1.5K	5%	1/4W F
R909	1-249-441-11	CARBON	100K	5%	1/4W
R910	1-249-414-11	CARBON	560	5%	1/4W F
R912	1-247-807-31	CARBON	100	5%	1/4W
R921	1-249-403-11	CARBON	68	5%	1/4W F
		< TRANSFORMER >			
⚠T601	1-431-101-11	TRANSFORMER, POWER			
		< VIBRATOR >			
X621	1-579-125-11	VIBRATOR, CERAMIC (4MHz)			
X671	1-579-834-11	VIBRATOR, CRYSTAL (33MHz)			
**********					
*	A-4699-484-A	PANEL BOARD, COMPLETE **********			
*	4-987-972-01	GUIDE (FL)			
		< CAPACITOR >			
C501	1-161-494-00	CERAMIC	0.022uF		25V
C502	1-161-494-00	CERAMIC	0.022uF		25V
C503	1-164-159-21	CERAMIC	0.1uF		50V
C504	1-162-215-31	CERAMIC	47PF	5%	50V
C505	1-164-159-21	CERAMIC	0.1uF		50V
C506	1-161-494-00	CERAMIC	0.022uF		25V
C507	1-161-494-00	CERAMIC	0.022uF		25V
		< CONNECTOR >			
CN501	1-568-856-11	SOCKET, CONNECTOR 13P			
		< FLUORESCENT INDICATOR >			
FL501	1-517-632-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC501	8-759-451-97	IC MSM9202-03GS-BK			
IC502	8-759-459-84	IC NJL56H400			
		< TRANSISTOR >			
Q501	8-729-029-67	TRANSISTOR DTC114ESA-TP			
Q502	8-729-029-67	TRANSISTOR DTC114ESA-TP			
Q503	8-729-029-67	TRANSISTOR DTC114ESA-TP			
		< RESISTOR >			
R501	1-249-427-11	CARBON	6.8K	5%	1/4W F
R502	1-249-415-11	CARBON	680	5%	1/4W F
R503	1-249-417-11	CARBON	1K	5%	1/4W F
R504	1-249-419-11	CARBON	1.5K	5%	1/4W F
R505	1-249-421-11	CARBON	2.2K	5%	1/4W F
R506	1-247-843-11	CARBON	3.3K	5%	1/4W
R507	1-249-427-11	CARBON	6.8K	5%	1/4W F
R508	1-249-431-11	CARBON	15K	5%	1/4W
R511	1-249-427-11	CARBON	6.8K	5%	1/4W F
R512	1-249-415-11	CARBON	680	5%	1/4W F
R513	1-249-417-11	CARBON	1K	5%	1/4W F
R514	1-249-419-11	CARBON	1.5K	5%	1/4W F

Ref. No.	Part No.	Description			Remark
R515	1-249-421-11	CARBON	2.2K	5%	1/4W F
R516	1-247-843-11	CARBON	3.3K	5%	1/4W
R517	1-249-427-11	CARBON	6.8K	5%	1/4W F
R518	1-249-431-11	CARBON	15K	5%	1/4W
R519	1-249-437-11	CARBON	47K	5%	1/4W
R521	1-247-843-11	CARBON	3.3K	5%	1/4W
R522	1-247-807-31	CARBON	100	5%	1/4W
R523	1-249-417-11	CARBON	1K	5%	1/4W F
R524	1-249-417-11	CARBON	1K	5%	1/4W F
R525	1-249-417-11	CARBON	1K	5%	1/4W F
R526	1-249-417-11	CARBON	1K	5%	1/4W F
R531	1-249-441-11	CARBON	100K	5%	1/4W
R532	1-249-441-11	CARBON	100K	5%	1/4W
R533	1-249-441-11	CARBON	100K	5%	1/4W
R534	1-249-429-11	CARBON	10K	5%	1/4W
		< SWITCH >			
S501	1-554-303-21	SWITCH, TACTILE (⏏ OPEN/CLOSE)			
S502	1-554-303-21	SWITCH, TACTILE (MUSIC SCAN)			
S503	1-554-303-21	SWITCH, TACTILE (PEAK SEARCH)			
S504	1-554-303-21	SWITCH, TACTILE (EDIT/TIMEFADE)			
S505	1-554-303-21	SWITCH, TACTILE (PLAY MODE)			
S506	1-554-303-21	SWITCH, TACTILE (REPEAT)			
S507	1-554-303-21	SWITCH, TACTILE (TIME)			
S511	1-554-303-21	SWITCH, TACTILE (CHECK)			
S512	1-554-303-21	SWITCH, TACTILE (◀◀)			
S513	1-554-303-21	SWITCH, TACTILE (▶▶)			
S514	1-554-303-21	SWITCH, TACTILE (◁)			
S515	1-554-303-21	SWITCH, TACTILE (❚❚)			
S516	1-554-303-21	SWITCH, TACTILE (■)			
S517	1-554-303-21	SWITCH, TACTILE (ENTER)			
S518	1-554-303-21	SWITCH, TACTILE (CLEAR)			
S521	1-473-452-11	ENCODER, ROTARY (⏮◁◁ AMS ▷▷⏭)			
**********					
*	1-664-311-11	POWER SW BOARD **********			
		< SWITCH >			
S301	1-554-118-00	SWITCH, PUSH (1 KEY)(POWER)			
**********					

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
13	1-769-971-11	WIRE (FLAT TYPE)(13 CORE)	
22	1-776-100-11	WIRE (FLAT TYPE)(23 CORE)	
⚠24	1-575-651-21	CORD, POWER (AEP,EE,CIS)	
⚠24	1-696-907-11	CORD, POWER (UK)	
* 101	1-452-538-11	MAGNET	
⚠151	8-848-379-31	OPTICAL PICK-UP KSS-213BA/F-NP	
152	1-769-069-11	WIRE (FLAT TYPE)(16 CORE)	
FL501	1-517-632-11	INDICATOR TUBE, FLUORESCENT	
M101	X-4917-523-3	MOTOR ASSY (SPINDLE)	
M102	X-4917-504-1	MOTOR ASSY (SLED)	
M151	A-4672-207-A	MOTOR (L) ASSY (LOADING)	
⚠T901	1-431-101-11	TRANSFORMER, POWER	
		ACCESSORIES & PACKING MATERIALS	
		**********	
	1-467-880-11	REMOTE COMMANDER (RM-D420)	
	1-558-271-11	CORD, CONNECTION (AUDIO 108cm)	
	3-810-765-71	MANUAL,COMMONNESS INSTRUCTION (CONTROL-A1) (AEP,UK) (ENGLISH,FRENCH,SPANISH,DUTCH,ITALIAN, PORTUGUESE)	
	3-810-765-91	MANUAL,COMMONNESS INSTRUCTION (CONTROL-A1) (EE,CIS)(ENGLISH,POLISH, RUSSIAN)	
	3-858-571-11	MANUAL, INSTRUCTION (ENGLISH,FRENCH,SPANISH)(AEP,UK)	
	3-858-571-21	MANUAL, INSTRUCTION (GERMAN,DUTCH,ITALIAN,PORTUGUESE)(AEP)	
	3-858-571-31	MANUAL, INSTRUCTION (SWEDISH,DANNISH,FINISH)(AEP)	
	3-858-571-41	MANUAL, INSTRUCTION (ENGLISH,POLISH,RUSSIAN)(EE,CIS)	
	4-962-615-01	COVER, BATTERY (for RM-D420)	
		**********	
		HARDWARE LIST	
		**********	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-621-775-10	SCREW +B 2.6X4	
#3	7-621-255-15	SCREW +P 2X3	
#4	7-685-134-19	SCREW +BTP 2.6X8 TYPE2 N-S	

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Replace only with part number specified.

9-960-908-11

Sony Corporation
Home A&V Products Company

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